PRE-APPLICATION REPORT

BASIC ASSESSMENT REPORT

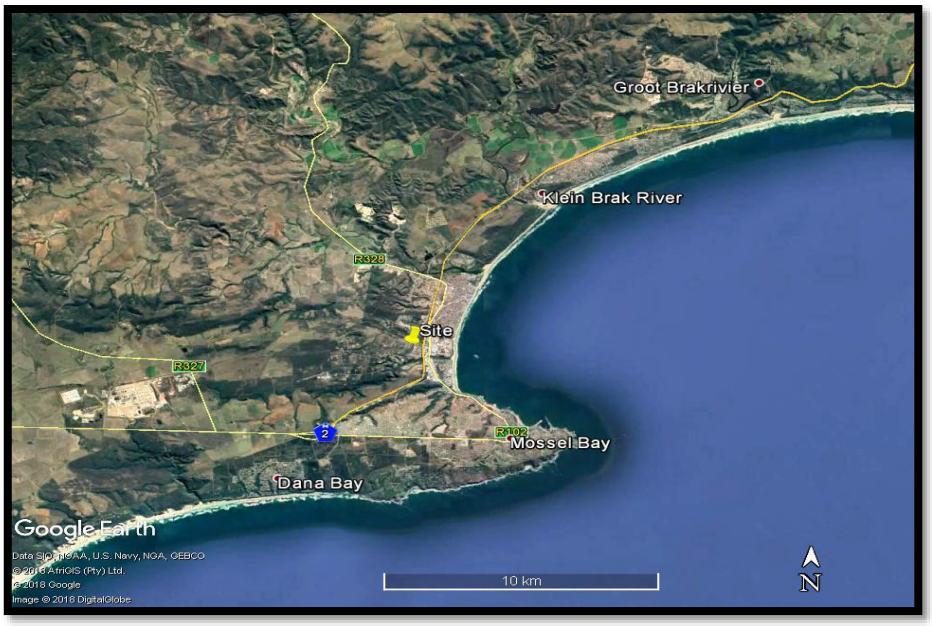
In terms of ***Section 24 and 24(D) of NEMA (Act No. 107 of 1998)***

for:

THE PROPOSED ERADICATION OF 9 HECTARES OF INDIGENOUS VEGETATION IN ORDER TO ESTABLISH A RESIDENTIAL DEVELOPMENT CONSISTING OF 72 X 6 BLOCK RESIDENTIAL UNITS, 2 X 12 BLOCK RESIDENTIAL UNITS, 912 PARKING BAYS AND STREETS AS WELL AS THE CONSTRUCTION OF A FACILITY FOR THE STORAGE OF 115 CUBIC METERS (5 X 23 000 LITRE TANKS) OF A DANGEROUS GOOD (FILLING STATION) SITUATED ON ERF 21244 (175/220), AALWYNDAL, MOSSEL BAY, WESTERN CAPE PROVINCE

16/3/3/6/7/1/D6/28/0007/20

Report Date: June 2021



Compiled by:

AB ENVIRO-CONSULT CC

7 Louis Leipoldt Street

Potchefstroom

2531

Tel: + 27 (83) 5488 105

Fax: + 27 (18) 293 0671

E-mail: jp@abenviro.co.za

Compiled for:

Hennie Bekker Familie Trust

CONDITIONS OF USE

Although ***AB Enviro Consult CC*** exercises due care and diligence in rendering services and preparing documents, ***AB Enviro Consult CC*** accepts no liability, and the client, by receiving this document, indemnifies ***AB Enviro Consult CC*** and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages, and expenses rising from or in connection with services rendered, directly or indirectly by ***AB Enviro Consult CC*** and by the use of the information contained in this document.

****

This document contains confidential and proprietary information of ***AB Enviro Consult CC*** and is protected by copyright in favour of ***AB Enviro Consult CC*** and may not be reproduced, or used without the written consent of ***AB Enviro Consult CC,*** which has been obtained beforehand. This document is prepared exclusively for ***Hennie Bekker Familie Trust*** and is subjected to all confidentiality, copyright and trade secrets, rules, intellectual property law and practices of South Africa.

****

This document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Clients. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. **AB Enviro Consult CC** *accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Document. Without prejudice.*

Project applicant Details

Applicant / Organisation / Organ of State:	Hennie Bekker Familie Trust		
Contact person:	Mr. Dean Nigrini		
Postal address:	PO Box 38, Grobbelaarskraal		
Telephone:	082 560 4419	Postal Code:	6450
Cellular:	082 560 4419	Fax:	018 293 0671
E-mail:	dnigrini@jabama.co.za		

Name of the EAP organisation:	AB Enviro Consult CC		
Person who compiled this Report:	Mr J. P. de Villiers		
EAP Reg. No.:	2019/808		
Contact Person (if not author):			
Postal address:	7 Louis Leipoldt Street, Potchefstroom, 2531		
Telephone:	018 294 5005	Postal Code:	2531
Cellular:	083 548 8105	Fax:	018 293 0671
E-mail:	jp@abenviro.co.za		
EAP Qualifications:	B.Sc. Honours (Environmental Management), M.Sc.		

Report compiled by: Mr J. P. de Villiers
 **Signature:**
Report reviewed by: Mrs Hannie du Plooy
Signature: *JE du Plooy*

EXECUTIVE SUMMARY

The land owner, **Hennie Bekker Familie Trust** has appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

The site which is located on the northern slope of a localized hill, spans from the gentle sloping summit through the steeply sloping side slope to the gentle sloping foot slope of the hill. Overall, the site is seen to display a variable sloping nature, with the slope generally following a radial sloping nature around the hill summit. The major slope is however in a northerly direction, from the higher lying hill summit in the south (approximately 85 mamsl) towards the lower lying area in the north (approximately 30 mamsl.

The site is roughly rectangular shaped and zoned "Residential 1". One Residential house has been constructed on site. The remainder of the site is mostly undeveloped. An overhead power line traverses the north eastern corner of the site. The northern and north western boundary of the site displays evidence of vegetation clearance for a firebreak. Heaps of dumped material, which over time have been covered with vegetation is also scattered across the site. Tracks, fences and alien invasive plant species are found at the site.

The study area is located on the outskirts of the town of Mossel bay, within the Mossel Bay Local Municipality forming part of the Eden District Mossel Bay within the south eastern portion of the Western cape Province of South Africa. The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan.

The Mossel Bay area is experiencing a great influx of people. In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were defined by developers, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of Urban Sprawl on sustainability.

The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha

In the Municipalities Precinct Plan for the area, open spaces were identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area.

The Mossel Bay Municipality commissioned a Biodiversity Assessment for the area. The Biodiversity Assessment was done by combining a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment. In terms of this assessment the proposed development falls within an area that has been identified as being "Very High Sensitivity" and has led to the inclusion of this area (The Application site) into the Open Space Network proposed for the Precinct Plan.

The Ecological Fauna and Flora Habitat study that was prepared for the site revealed that the ecological sensitivity at most of the site is medium despite the fact that it forms part of the Groot Brak Dune Strandveld (FS 9) which is Endangered. Considerably degraded areas at the northeastern parts of the site are regarded as a low sensitivity area. Vegetation at most of the site consists of sclerophyllous shrub mixed with a conspicuous infestation of the alien invasive *Acacia cyclops* (Redeye). Only about 40%, or 5,2 ha (the entire site is 12,5746 ha)of this vegetation type is still

recognisable. For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.

The outcome of the Ecological assessment noted that the Open Space corridor recommended by the Precinct Plan should be moved to the more sensitive middle of the site.

Although bulk services are available in close proximity to the site, some infrastructure upgrades will be necessary. These upgrades do not form part of this application, however, no occupation of the site will take place before bulk services are available.

The Traffic Impact Assessment conducted for the proposed development concluded that the filling station will have to be moved towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration.

In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area.

The Development area has been rated as a "High" sensitivity site for the civil aviation theme. This is mainly due to its close proximity to the Mossel Bay Aerodrome (FAMO) at location Ref. Point: S340925 E0220341. In accordance with the Government Gazette No. 43110 a specialist assessment was performed in order to ensure the level of impact on civil aviation installations. After an assessment performed by a radio frequency and radar specialist the site was rated as a "Low" sensitivity site for the civil aviation theme.

The detailed environmental assessment for the proposed development, has not found any environmental impacts that *cannot* be mitigated to acceptable and manageable levels. A full Public Participation Process will be conducted and all objections or comments will be included into the Draft BAR.

Western Cape Government
Environmental Affairs and Development Planning

FORM NO. BAR10/2019

BASIC ASSESSMENT REPORT (PRE-APPLICATION BAR)

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):	
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)

The eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay.

The proposed development is the product of a considered design and layout following various specialist inputs and national, provincial and municipal guideline considerations. Various alternatives have been considered and are discussed in the "alternatives" section of the report which details the process which has led to the proposed preferred alternative. The site is influenced by a number of design factors that were considered for the proposed layout plan to be acceptable. These factors include the slope of the site, environmental sensitivity, service provision, erf size, access, road layout and community facilities as well as the geotechnical features. The alternatives considered was influenced particularly by geotechnical considerations, location of waterbodies, and ecological sensitivity of the site as well as traffic considerations.

The latest conceptual design proposes a mixed use development, consisting of two main components: The first and largest component consists of 456 residential dwellings and the second component, a filling station. *The conceptual design proposes a density of* ***36.26 Units/hectare*** The position of the proposed filling station has been moved towards the Eastern site Boundary as recommended by the latest Traffic Impact Assessment.

The two residential portions are made up of 37 blocks each containing 6 individual, 3-storey dwelling units, except for one block in each portion which contains small, 12 individual, 1 bedroom units.

Each residential portion consist of 228 units of 4 different sizes ranging from the largest 97m², three bedroom units to the smallest 56m² one bedroom units.

The two residential portions are divided by a new proposed road that serves as an alternative route to Aalwyn Road and as a connectivity corridor between the older and new neighbourhood as per the Aalwyndal Precinct Plan proposal in 2018. The division of the proposed site further prevent the new development to form a border and instead provide an opportunity for integration between the new extension zone and the existing; more established precinct.

The proposed development will also consist of the associated service infrastructure (water, electricity, storm water, internal roads and the upgrading of external roads).

Private Open space, with recreational amenities (walking/biking trials) and a clubhouse on each residential portion for formal and informal activities, a pool and a small shop with an opportunity for a small restaurant or coffee shop.

The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan.

The vision for the Precinct Plan for Aalwyndal is listed below.

VISION

An integrated, mixed use and sustainable neighbourhood that builds on the spatial vision of the Mossel Bay Spatial Development Framework.

The vision is undergirded by the following design objectives:

- Contribute towards the goal of densification and compact development by designing the residential component accordingly
- Provide housing for a gradient mix of income groups
- Incorporating the natural environment in the design of land parcels
- Contain the footprint of the neighbourhood and land use mix at a density which will promote walkability
- Linking the commercial area with the airport activities to create a viable economic hub
- Design and build with renewable energy and green construction in mind
- Integrate Aalwyndal with the rest of the town by road linkages, bulk service networks and continuing natural systems.

The intention of this proposed development is to adhere to the principals as is set out in this Precinct Plan.

All the civil services and pertaining infrastructure have been designed in accordance with the "Guidelines for Human Settlements, Planning and Design" as compiled under patronage of the Department of Housing by CSIR Building & Construction Technology (also known as the "Red Book"). The relevant code of standards (i.e. SABS 1200, etc.) will be applicable to material and construction standards.

Bulk Water Supply for Domestic Usage

Potable water for human consumption and domestic use will be required and will be provided by Mossel Bay Municipality from their water treatment works in Klein Brakriver. Based on the Guidelines for the Provision of Municipal Infrastructure as well as the Water Master Plan for the Mossel Bay Area, it is estimated that the water demand that will be required for domestic usage is as follows:

i) Per annum:105820 kℓ/y

Average per day: 290 kℓ/day

Allowance will be made for bulk supply to the proposed development to allow for peak and fire demand (Fire flow criteria of 15 ℓ/s is applicable).

Bulk water to the proposed development will be supplied from the existing Aalwyndal reservoir. An additional 7,0 ℓ/s pumping supply capacity will be required from the existing Langeberg to Aalwyndal reservoirs. There is however sufficient pumping capacity at the Aalwyndal pumping station and rising main to meet the increased required capacity.

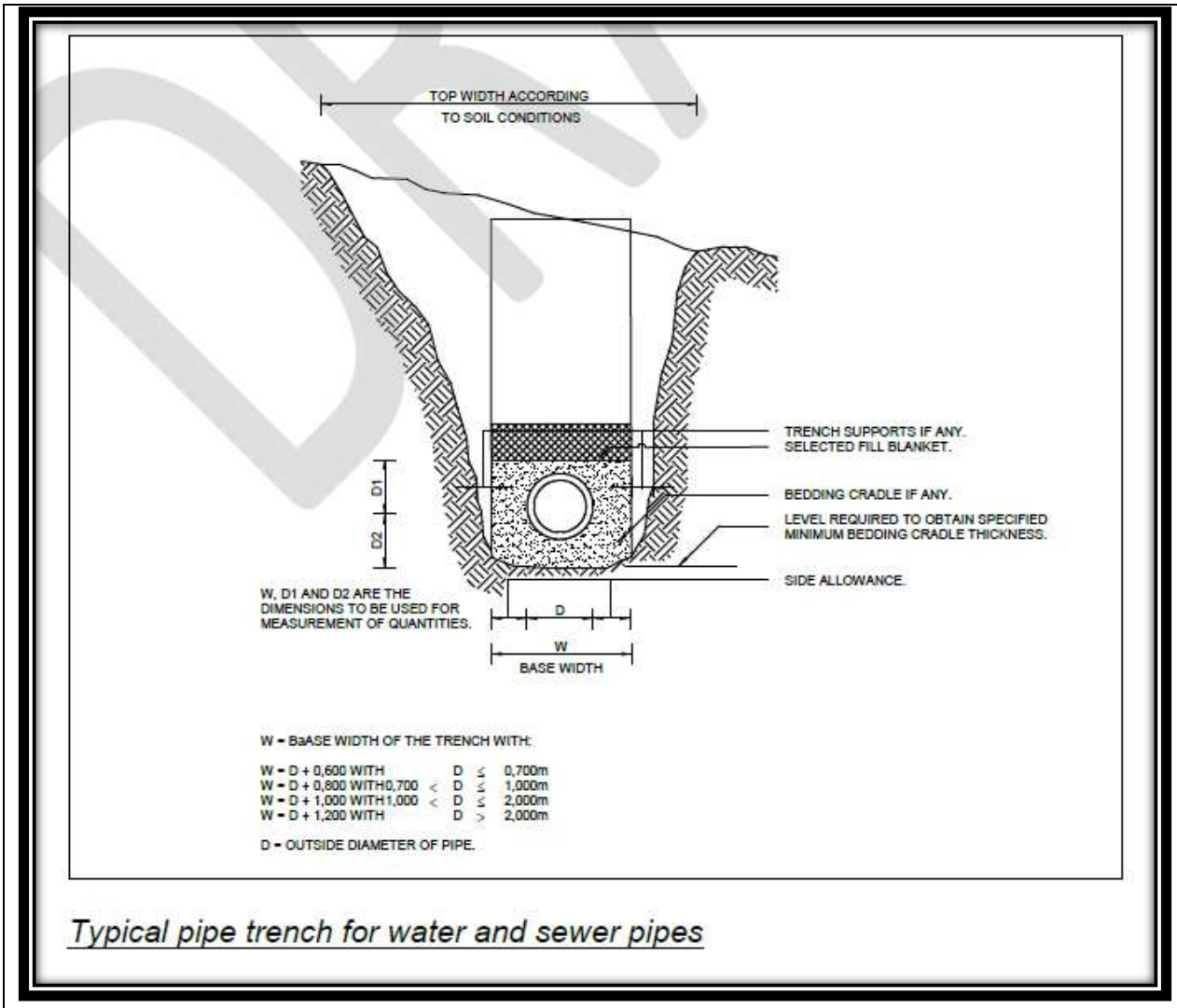
Two reinforcing gravity supply pipelines, 2370 m x 250 mm ø and 680 m x 160 mm ø, between the Aalwyndal reservoir and the proposed development will be required to accommodate the development. The pipelines will supply water to the proposed development as well as the adjacent future development area. A proposed PRV will be required to reduce potential high static pressures in the lower laying areas of the zone. PRV pressure setting to be confirmed during final design.

The Mossel Bay Municipality confirmed that enough water is available to supply in this demand.

Bulk Sewage Removal
All the sewage from the proposed development will gravitate to a proposed new pumping station and rising main. From this pumping station the sewage from the proposed Development will be pumped to the existing Voorbaai pumping station.

From the Voorbaai pumpstation the sewage will be pumped through the existing sewage rising main to the connection point at the existing Municipal outfall sewer. From the connection point the sewage will gravitate through the existing 2 x 450 mm HDPE (Class 12) siphons from Hartenbos to the Inletworks at the Hartenbos Regional Sewage Treatment Works.

The Mossel Bay Municipality confirmed that the necessary capacity is available at their Hartenbos Regional Treatment Works to handle the additional sewage inflow from this development.



Typical pipe trench for water and sewer pipes

Stormwater drainage
As is standard practice, a stormwater management plan will be handed in to the controlling bodies for approval. For this development, the 1:50 year and 1:100 flood lines **are not applicable**.

The stormwater plan will be based on the following:
Up to 1:5 year flood to be handled in channels and/or underground pipes. Stormwater runoff from the roads will be channelled along concrete channels and/or road kerbs to catch pits from where it will be piped to low points. Bigger floods to run on surface as is the standard.

The stormwater network will consist of 450 mm concrete pipes. Pipe trench widths required by SANS 1200 is 900 mm. Trench depths will be determined by the topography but will be between 1,0 to 3,0 m deep.

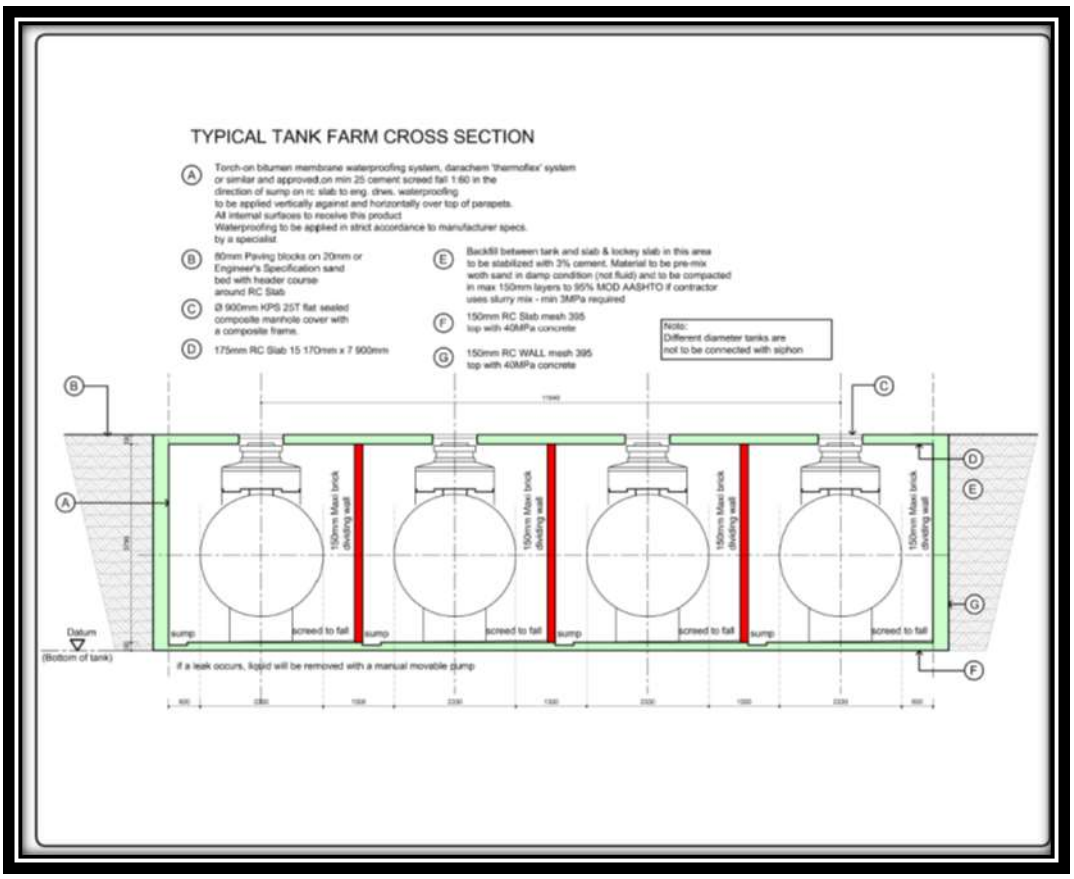
The applicant also intends to develop a Filling station, consisting of 5 x 23 000 ℓ tanks.

Design details:

- A "Master circuit breaker" controlling all petrol dispensing units, secured to the wall on the main driveway, in an easily accessible position, not less than 3m from any dispensing unit will be installed.
- A notice above the "Master circuit breaker" in 25mm letters which will read "EMERGENCY PUMP SWITCHES" in capital letters will be provided.
- Each petrol dispensing unit will be fitted with either an "O.P.W." model 10 safety shut—off valve, or a similar device of an equal standard.
- The submersible pump motor will be flame and explosion proof.
- Piping will be in accordance with— S.A.N.S. 10062 and S.A.N.S. 1123

- Ventilation pipes will be taken to a height of 3,8m above ground level, and will be fitted with flame proof air vent caps with gauze.
- All piping will slope up from tanks to prevent airlocks.
- All fire fighting equipment on forecourt will be supplied by the operator to suit the Fire Department requirements. S.A.N.S. 10400
- All electrical switches, plugs & motors within 3m of any pump will be flame and explosion proof.
- 200mm reinforced concrete apron will be constructed over tanks to extend lm beyond tanks.
- Electricians will connect up pump distribution boards.
- The installation will conform to S.A.N.S. 10089 part 3: 2010 for pumps and underground tanks, as well as S.A.N.S. 10131 part 2, 1186.
- The electrical installation will conform to S.A.N.S. code 10142, S.A.N.S. 1202, S.A.N.S. 10108, SA.N.S. 10089—2 and S.A.N.S. 1109.
- Symbolic "NO SMOKING" and "NO OPEN FLAME" signs will be displayed on the canopy — S.A.N.S. 1186 — 1
- The Emergency Stop Switch will comply with S.A.N.S. 10089—3 SECTION 14.7 TANKS SHOULD BE POSITIONED 600mm APART FROM EACH OTHER.

In relation to the Service station and underground fuel storage tanks, the following detailed designs are proposed:



Typical Tank Farm Layout

Monitoring wells are proposed to either side of the tanks to ensure that leaks are detected in a timely manner.

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, 19998 (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

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

MAPS

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.	
Locality Map:	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: • 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. 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. 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.

Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	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: • 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): o Watercourses / Rivers / Wetlands o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): o Ridges; o Cultural and historical features/landscapes; o 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 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.
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**	Not Applicable
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	Not Applicable
Appendix B:	**Appendix B1:**	**Site development plan(s)**	✓
	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 D:	**Biodiversity overlay 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**	To be included in DBAR
	Appendix E2:	**Copy of comment from Cape Nature**	To be included in DBAR
	Appendix E3:	**Final Comment from the DWS**	To be included in DBAR
	Appendix E4:	**Comment from the DEA: Oceans and Coast**	Not Applicable
	Appendix E5:	**Comment from the DAFF**	To be included in DBAR
	Appendix E6:	**Comment from WCG: Transport and Public Works**	To be included in DBAR
	Appendix E7:	**Comment from WCG: DoA**	Not Applicable
	Appendix E8:	**Comment from WCG: DHS**	Not Applicable

	Appendix E9:	**Comment from WCG: DoH**	Not Applicable
	Appendix E10:	**Comment from DEA&DP: Pollution Management**	To be included in DBAR
	Appendix E11:	**Comment from DEA&DP: Waste Management**	To be included in DBAR
	Appendix E12:	**Comment from DEA&DP: Biodiversity**	To be included in DBAR
	Appendix E13:	**Comment from DEA&DP: Air Quality**	To be included in DBAR
	Appendix E14:	**Comment from DEA&DP: Coastal Management**	Not Applicable
	Appendix E15:	**Comment from the local authority**	To be included in DBAR
	Appendix E16:	**Confirmation of all services (water, electricity, sewage, solid waste management)**	To be included in DBAR
	Appendix E17:	**Comment from the District Municipality**	To be included in DBAR
	Appendix E18:	**Copy of an exemption notice**	Not Applicable
	Appendix E19	**Pre-approval for the reclamation of land**	Not Applicable
	Appendix E20:	**Proof of agreement/TOR of the specialist studies conducted.**	✓
	Appendix E21:	**Proof of land use rights**	✓
	Appendix E22:	**Proof of public participation agreement for linear activities**	Not Applicable
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.**		To be included in DBAR
Appendix G:	**Specialist Report(s)**		✓
Appendix H:	**EMPr**		✓
Appendix I:	**Screening tool report**		✓
Appendix J:	**The impact and risk assessment for each alternative**		Included in the report under Section H, Paragraph 4.

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**	Included in the report under Section C, Paragraph 4.12
Appendix…..	**Any other attachments must be included as subsequent appendices**	

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	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)

Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	Hennie Bekker Familie Trust	
Name of contact person for Applicant/Proponent (if other):	Mr. Dean Nigrini	
Company/ Trading name/State Department/Organ of State:	Hennie Bekker Familie Trust	
Company Registration Number:		
Postal address:	PO Box 38, Grobbelaarskraal	
		Postal code: 6450
Telephone:	082 560 4419	Cell: 082 560 4419
E-mail:	dnigrini@jabama.co.za	Fax: 018 293 0671
Company of EAP:	AB Enviro Consult	
EAP name:	Mr J. P. de Villiers	
Postal address:	7 Louis Leipoldt Street, Potchefstroom	
		Postal code: 2531
Telephone:	(018)294 5005	Cell:083 548 8105
E-mail:	jp@abenviro.co.za	Fax: (018)293 0671
Qualifications:	B.Sc. Honours (Environmental Management), M.Sc.	
EAPASA registration no:	2019/808	
Duplicate this section where there is more than one landowner Name of landowner:	Hennie Bekker Familie Trust	
Name of contact person for landowner (if other):	Mr. Dean Nigrini	
Postal address:	PO Box 38, Grobbelaarskraal	
		Postal code: 6450
Telephone:	082 560 4419	Cell: 082 560 4419
E-mail:	dnigrini@jabama.co.za	Fax: 018 293 0671
Name of Person in control of the land:	Hennie Bekker Familie Trust	
Name of contact person for person in control of the land:	Mr. Dean Nigrini	
Postal address:	PO Box 38, Grobbelaarskraal	
		Postal code: 6450
Telephone:	082 560 4419	Cell: 082 560 4419
E-mail:	dnigrini@jabama.co.za	Fax: 018 293 0671

Duplicate this section where there is more than one Municipal Jurisdiction	Mossel Bay Local Municipality

Municipality in whose area of jurisdiction the proposed activity will fall:		
Contact person:	Mr Jaco Roux	
Postal address:	Private Bag X29, Mossel Bay,	
		Postal code: 6500
Telephone	044 606 5000	Cell:083 740 6898
E-mail:	www.mosselbay.gov.za	Fax: 044 606 5062

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

1.	Is the proposed development (please tick):	New	X	Expansion	
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
The site is brownfield as the site is located within the urban edge and is zoned residential 1 with one residential house on the erf.					
3.	**For Linear activities or developments**				
N/A					
4.	**Other developments**				
4.1.	Property size(s) of all proposed site(s):				125 746 m^2
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):				2 681m^2
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:				90 000m^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 land owner, **Hennie Bekker Familie Trust** has appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai. Please see Figure 1 for a Locality Map and Figure 2 for a copy of the proposed layout plan.

The latest conceptual design proposes a mixed use development, consisting of two main components: The first and largest component consists of 456 residential dwellings and the second component, a filling station. *The conceptual design proposes a density of* ***36.26 Units/hectare***
The position of the proposed filling station has been moved towards the Eastern site Boundary as recommended by the latest Traffic Impact Assessment.

The two residential portions are made up of 37 blocks each containing 6 individual, 3-storey dwelling units, except for one block in each portion which contains small, 12 individual, 1 bedroom units.

Each residential portion consist of 228 units of 4 different sizes ranging from the largest 97m², three bedroom units to the smallest 56m² one bedroom units.

The two residential portions are divided by a new proposed road that serves as an alternative route to Aalwyn Road and as a connectivity corridor between the older and new neighbourhood as per the Aalwyndal Precinct Plan proposal in 2018. The division of the proposed site further prevent the new development to form a border and instead provide an opportunity for integration between the new extension zone and the existing; more established precinct.

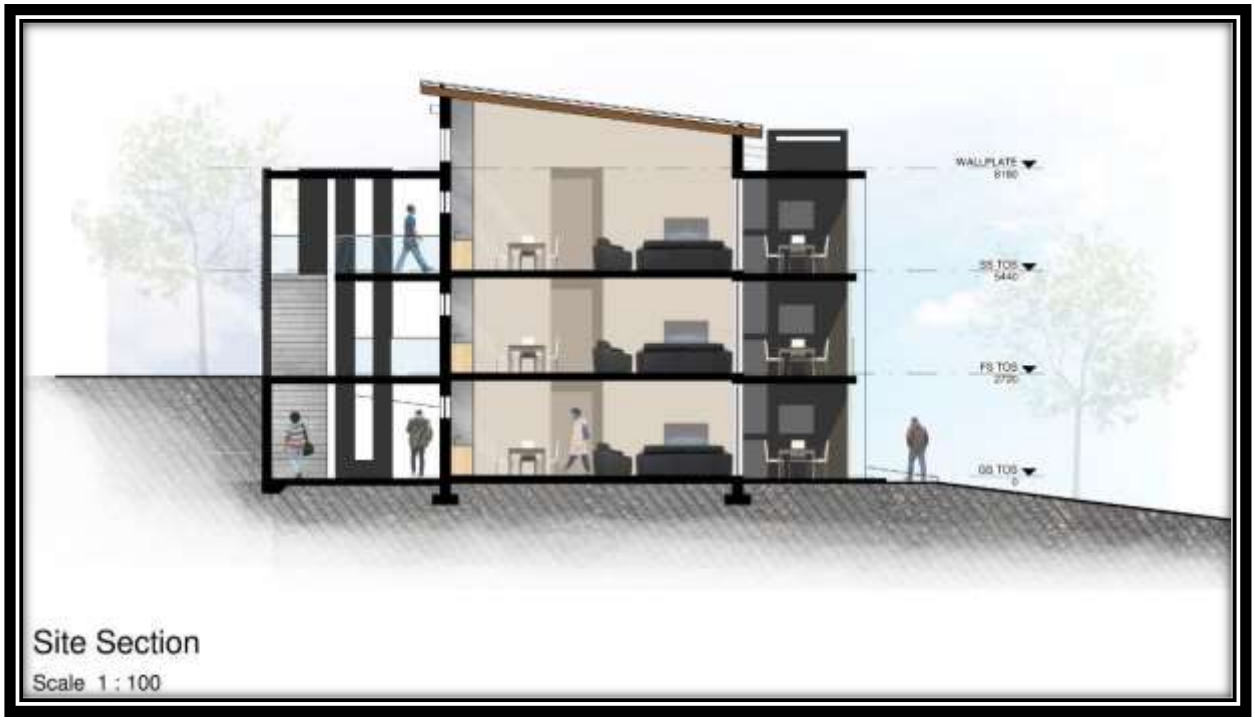
The proposed development will also consist of the associated service infrastructure (water, electricity, storm water, internal roads and the upgrading of external roads).

Private Open space, with recreational amenities (walking/biking trials) and a clubhouse on each residential portion for formal and informal activities, a pool and a small shop with an opportunity for a small restaurant or coffee shop.

Figure 1: Locality Map.

Figure 2: Proposed layout plan.

THE PROPOSED DEVELOPMENT: 3D – Perspectives



THE PROPOSED DEVELOPMENT : Conceptual Unit Lay-outs
Residential Integration: Providing housing for a gradient mix of income groups:
A - 24 x 1 Bedroom & 1 Bathroom Units = (12 x 56m² Units + 12 x 62m² Units) – 5.2%
B - 276 x 2 Bedroom & 1 Bathroom Units = 74m² Units – 60.6%
B - 102 x 2 Bedroom & 2 Bathroom = 84m² units - 22.4% (*THUS a Total of 378 x 2 Bedroom Units – 83%)*
C - 54 x 3 Bedroom & 2 Bathroom Units = 97m² units – 11.8%
Total = 456 Units in Total

THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units
Block A

THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units
Block B

THE PROPOSED DEVELOPMENT: 3D – Perspectives of different type Units
Block C

THE PROPOSED DEVELOPMENT: 3D – Perspectives

THE PROPOSED DEVELOPMENT: Conceptual Landscape Plan

Part plan A & B - Conceptual Landscape Design (Source: Bertha Wium Landscape Development)

The site is influenced by a number of design factors that were considered for the proposed layout plan to be acceptable. These factors include the slope of the site, environmental sensitivity, service provision, erf size, access, road layout and community facilities as well as the geotechnical features.

The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan.

The vision for the Precinct Plan for Aalwyndal is listed below.

VISION

An integrated, mixed use and sustainable neighbourhood that builds on the spatial vision of the Mossel Bay Spatial Development Framework.

The vision is undergirded by the following design objectives:

- Contribute towards the goal of densification and compact development by designing the residential component accordingly
- Provide housing for a gradient mix of income groups
- Incorporating the natural environment in the design of land parcels
- Contain the footprint of the neighbourhood and land use mix at a density which will promote walkability
- Linking the commercial area with the airport activities to create a viable economic hub
- Design and build with renewable energy and green construction in mind
- Integrate Aalwyndal with the rest of the town by road linkages, bulk service networks and continuing natural systems.

The intention of this proposed development is to adhere to the principals as is set out in this Precinct Plan.

All the civil services and pertaining infrastructure have been designed in accordance with the "Guidelines for Human Settlements, Planning and Design" as compiled under patronage of the Department of Housing by CSIR Building & Construction Technology (also known as the "Red Book"). The relevant code of standards (i.e. SABS 1200, etc.) will be applicable to material and construction standards.

Bulk Water Supply for Domestic Usage

Potable water for human consumption and domestic use will be required and will be provided by Mossel Bay Municipality from their water treatment works in Klein Brakriver. Based on the Guidelines for the Provision of Municipal Infrastructure as well as the Water Master Plan for the Mossel Bay Area, it is estimated that the water demand that will be required for domestic usage is as follows:

i) Per annum:105820 kℓ/y
Average per day: 290 kℓ/day

Allowance will be made for bulk supply to the proposed development to allow for peak and fire demand (Fire flow criteria of 15 ℓ/s is applicable).

Bulk water to the proposed development will be supplied from the existing Aalwyndal reservoir. An additional 7,0 ℓ/s pumping supply capacity will be required from the existing Langeberg to Aalwyndal reservoirs. There is however sufficient pumping capacity at the Aalwyndal pumping station and rising main to meet the increased required capacity.

Two reinforcing gravity supply pipelines, 2370 m x 250 mm ø and 680 m x 160 mm ø, between the Aalwyndal reservoir and the proposed development will be required to accommodate the development. The pipelines will supply water to the proposed development as well as the adjacent future development area. A proposed PRV will be required to reduce potential high

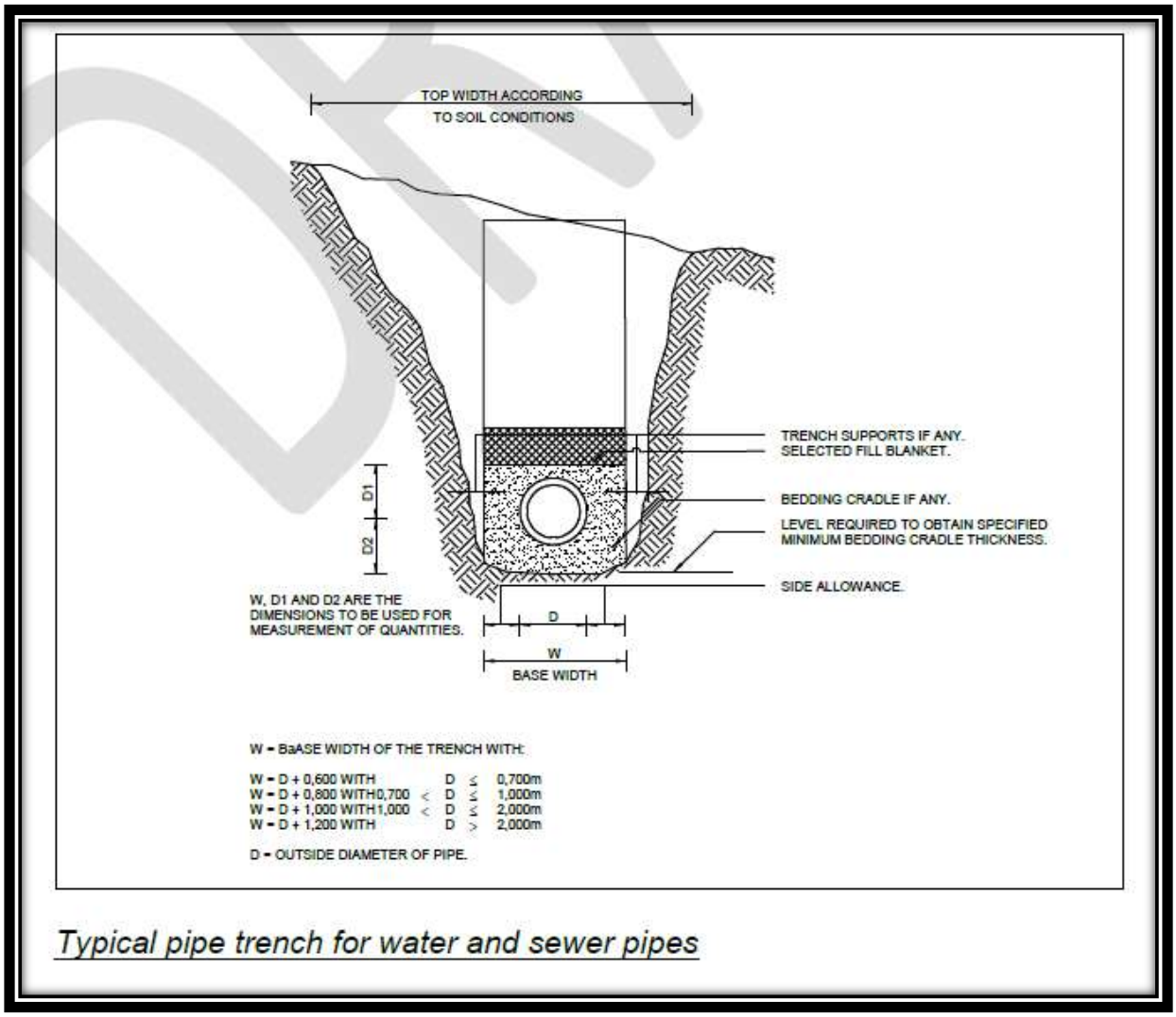
static pressures in the lower laying areas of the zone. PRV pressure setting to be confirmed during final design.

The Mossel Bay Municipality confirmed that enough water is available to supply in this demand.

Bulk Sewage Removal
All the sewage from the proposed development will gravitate to a proposed new pumping station and rising main. From this pumping station the sewage from the proposed Development will be pumped to the existing Voorbaai pumping station.

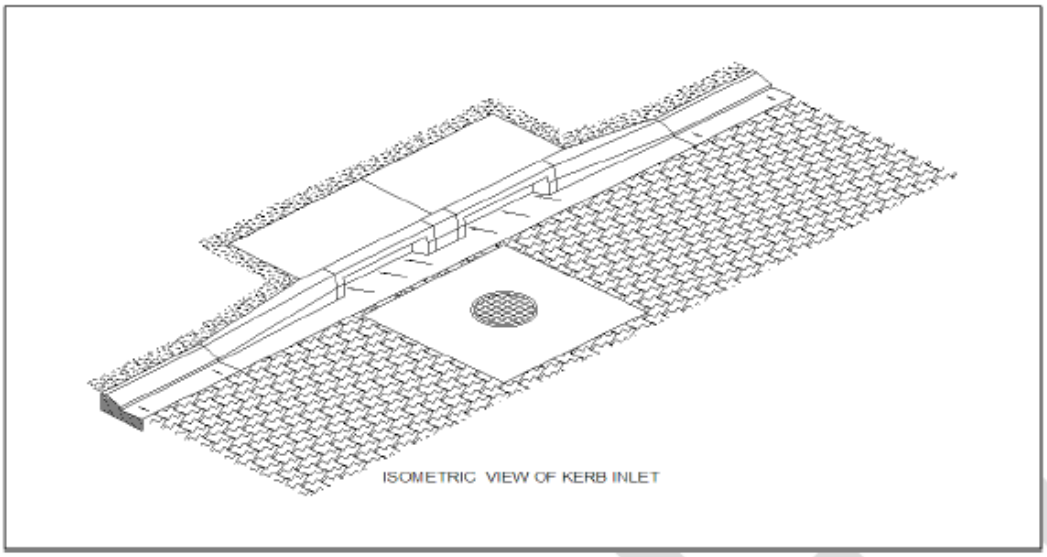
From the Voorbaai pumpstation the sewage will be pumped through the existing sewage rising main to the connection point at the existing Municipal outfall sewer. From the connection point the sewage will gravitate through the existing 2 x 450 mm HDPE (Class 12) siphons from Hartenbos to the Inletworks at the Hartenbos Regional Sewage Treatment Works.

The Mossel Bay Municipality confirmed that the necessary capacity is available at their Hartenbos Regional Treatment Works to handle the additional sewage inflow from this development.



Typical pipe trench for water and sewer pipes

Roads and Stormwater
The main access to the proposed development will be from Aalwyn Road and the proposed new regional road upgrades. It is planned that Henning Street be closed in the future. The internal road network comprise of approximately 32300 m² of premix / paver roads.

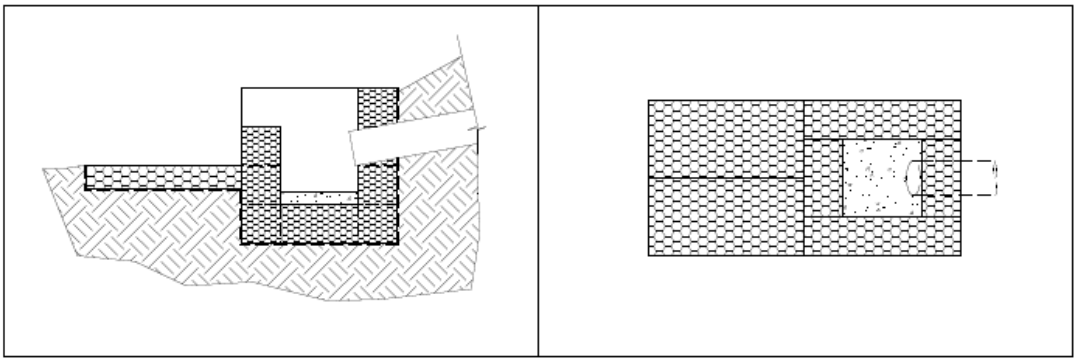


Typical storm water inlet structure

As is standard practice, a stormwater management plan will be handed in to the controlling bodies for approval. For this development, the 1:50 year and 1:100 flood lines **are not applicable**.

The stormwater plan will be based on the following:
Up to 1:5 year flood to be handled in channels and/or underground pipes. Stormwater runoff from the roads will be channelled along concrete channels and/or road kerbs to catch pits from where it will be piped to low points. Bigger floods to run on surface as is the standard.

The stormwater network will consist of 450 mm concrete pipes. Pipe trench widths required by SANS 1200 is 900 mm. Trench depths will be determined by the topography but will be between 1,0 to 3,0 m deep.



Typical energy dissipating structure at storm water pipe outlet

To prevent soil erosion and possible pollution as a result of storm water runoff during the construction stage, erosion control methods such as silt fences and silt traps, energy breakers in the form of logs secured with stakes, brush-packing and mulching and re-seeding need to be considered. It will be the responsibility of the Developer to ensure Contractors apply erosion control measures throughout the period of risk and that the works are protected from damage that may be caused through runoff of rainwater.

Example of soil erosion protection by means of silt fences and logs

Stormwater drainage
As is standard practice, a stormwater management plan will be handed in to the controlling bodies for approval. For this development, the 1:50 year and 1:100 flood lines **are not applicable**.

The stormwater plan will be based on the following:
Up to 1:5 year flood to be handled in channels and/or underground pipes. Stormwater runoff from the roads will be channelled along concrete channels and/or road kerbs to catch pits from where it will be piped to low points. Bigger floods to run on surface as is the standard.

The stormwater network will consist of 450 mm concrete pipes. Pipe trench widths required by SANS 1200 is 900 mm. Trench depths will be determined by the topography but will be between 1,0 to 3,0 m deep.

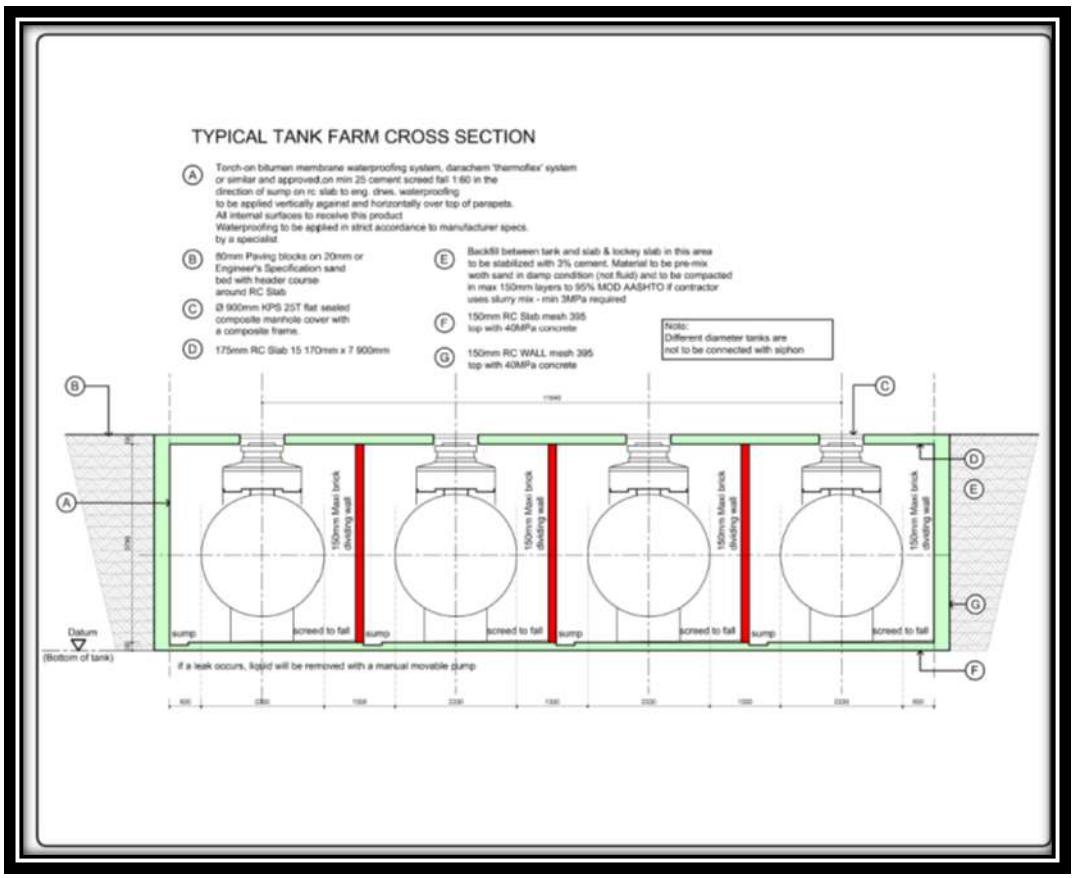
The applicant also intends to develop a **FILLING STATION**, consisting of 5 x 23 000 ℓ tanks.

Design details:

- A "Master circuit breaker" controlling all petrol dispensing units, secured to the wall on the main driveway, in an easily accessible position, not less than 3m from any dispensing unit will be installed.
- A notice above the "Master circuit breaker" in 25mm letters which will read "EMERGENCY PUMP SWITCHES" in capital letters will be provided.
- Each petrol dispensing unit will be fitted with either an "O.P.W." model 10 safety shut—off valve, or a similar device of an equal standard.
- The submersible pump motor will be flame and explosion proof.
- Piping will be in accordance with— S.A.N.S. 10062 and S.A.N.S. 1123
- Ventilation pipes will be taken to a height of 3,8m above ground level, and will be fitted with flame proof air vent caps with gauze.

- All piping will slope up from tanks to prevent airlocks.
- All fire fighting equipment on forecourt will be supplied by the operator to suit the Fire Department requirements. S.A.N.S. 10400
- All electrical switches, plugs & motors within 3m of any pump will be flame and explosion proof.
- 200mm reinforced concrete apron will be constructed over tanks to extend lm beyond tanks.
- Electricians will connect up pump distribution boards.
- The installation will conform to S.A.N.S. 10089 part 3: 2010 for pumps and underground tanks, as well as S.A.N.S. 10131 part 2, 1186.
- The electrical installation will conform to S.A.N.S. code 10142, S.A.N.S. 1202, S.A.N.S. 10108, SA.N.S. 10089—2 and S.A.N.S. 1109.
- Symbolic "NO SMOKING" and "NO OPEN FLAME" signs will be displayed on the canopy — S.A.N.S. 1186 — 1
- The Emergency Stop Switch will comply with S.A.N.S. 10089—3 SECTION 14.7 TANKS SHOULD BE POSITIONED 600mm APART FROM EACH OTHER.

In relation to the Service station and underground fuel storage tanks, the following detailed designs are proposed:



Typical Tank Farm Layout

Monitoring wells are proposed to either side of the tanks to ensure that leaks are detected in a timely manner. Containment elements are proposed concrete slab minimum 74mm concrete bedding/blinding concrete grade 15/19. Cement is proposed stabilised backfill in 150 mm layers, top slab 150mm thick to engineer's details.

RECOMMENDATIONS

Precautionary measures:
Even though the development poses a risk of contamination, sufficient mitigation and management measures exist and can be implemented to ensure the environmental

sustainability and viability of the development, based on implementation of the following recommendations and precautionary measures:

The requirements stipulated in SANS 10089 must be complied with, including but not limited to:

- Steel tanks and coatings shall comply with the requirements of SANS 1535.
- Fibre-reinforced plastic tanks shall comply with the requirements of SANS 1668, and all materials used in contact with the tank shall be compatible with the fibre-reinforced resin.
- Installation of fuel leak observation wells adjacent to the tanks.
- A full system integrity test in accordance with an approved test method shall be carried out on the tank after installation
- An efficient stormwater management system must be designed implemented on site.
- Stormwater from the site must drain into a sealed oil sump constructed directly downstream of the site in order to intercept possibly contaminated surface run-off from the apron and parking areas.
- All surface areas where the handling of fuel will take place (apron area) must be sealed by means of concrete slabs underlain by bitumen at the intersections of the concrete slabs, to prevent the infiltration of liquids into the underlying soil. The soil material underlying this layer must be adequately compacted to prevent ingress of liquids through zones of weakness (i.e.: along joints) within the surface seal.
- The regular reconciliation of the volumes of petroleum products is recommended to ensure the early detection of leaks.
- Care should be taken that all fuel lines and fuel dispensers are leak-proof, especially in the light of the corrosion risk posed by the topsoil covering the area.
- A spillage contingency plan must be developed

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

The main access to the proposed development will be from Aalwyn Road and the proposed new regional road upgrades. It is planned that Henning Street be closed in the future. For the first phase of the development, this road will be used to gain access.

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:	C	0	5	1	0	0	0	0	0	0	0	0	0	2	2	0	0	0	1	7	5

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	34°	08‘	51,81“
	Longitude (E)	22°	05‘	37,74“

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

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:AQA"). 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.

- **The Constitution of South Africa (Act 108 of 1996)** The proposed development will promote economic growth and social development while upholding environmental rights. This will happen through the implementation of the environmental management plan

- **National Environmental Management Act (107 of 19989) (NEMA) and Environmental Impact Assessment (EIA) Regulations, 2014** This Basic Assessment will be submitted to the Department of Environmental Affairs and Development Planning (DEADP) to ensure that the national environmental principles, fair decision making and integrated environmental management approach is applied throughout the process. The basic assessment and associated environmental management plan aim to prevent pollution and ecological degradation, promote conservation (through a recommended ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development, as outlined in the Act.

  The area to be developed according to distribution of properties will require that more than 1 hectare of area be cleared. Portions of the site is located within a CBA This activity will trigger listed activities in Government Notice R. 324 and R.327 and is deemed to have a potential impact on natural environments and therefore requires a Basic Assessment for approval of development activities. The proposed establishment of the filling station will also trigger Activity 14 of the said regulations

- **Western Cape Nature Conservation Laws Amendment Act (No. 3 of 2000)** The area is located within a CBA 1 and therefore the eradication of indigenous vegetation needs to be in accordance with relevant policies and guidelines

- **Spatial Planning and Land Use Management Act (Act 16 of 2013)** - Provides the overarching framework for spatial planning and land use management.

- **Occupational Health and Safety Act (Act 85 of 1993), as amended** - Sets out the framework for the health and safety of persons at work, the health and safety of persons in connection with the activities of persons at work, and the requirements for the advisory council for occupational health and safety.

- **National Road Traffic Act (Act 93 of 1996)** - Sets out the regulations relating to the transportation of dangerous goods and substances by road.

- **Petroleum Products Act (Act 120 of 1977), as amended** - The Act regulates the distribution and sale of petroleum

4. Policies

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

National Development Plan
The vision of the plan is that South Africa will write a new story where the nation's energies are focused both on attacking poverty and expanding a robust, entrepreneurial and innovative economy. Over the next two decades and beyond, communities will need the resources and capabilities to become their own engines of development and government must support this. Government has to ensure that poor people have the environment, services and skills to improve their lives. At the same time, government must create the conditions and environment for higher levels of public and private investment to create jobs and ensure rising incomes.

The national development plan proposes to invigorate and expand the economic opportunity through investment in infrastructure, more innovation, private investment and entrepreneurialism. The economy will absorb more labour – especially of new work seekers – and wage moderation at all levels will contribute to rising employment. Broadening these opportunities requires faster, more inclusive economic growth and higher levels of investment.

The opinion is being held that the proposed development will not be in conflict with the principles contained within the fore-mentioned National Development Plan, 2030 and will assist in moving closer to a …. "South Africa that is more inclusive, more dynamic and in which the fruits of growth are shared equitably. In 2030, the economy should be close to full employment, equip people with the skills they need, ensure that ownership of production is more diverse and able to grow rapidly, and provide the resources to pay for investment in human and physical capital."

Western Cape Provincial Spatial Development Framework FINAL REPORT | March 2014
This document defines SPATIAL EFFICIENCY as "Efficiency relates to the form of settlements and use of resources - compaction as opposed to sprawl; mixed-use as opposed to mono-functional land uses; residential areas close to work opportunities as opposed to dormitory settlement, and prioritisation of public transport over private car use. When a settlement is compact higher densities provide thresholds to support viable public transport, reduce overall energy use, and lower user costs as travel distances are shorter and cheaper."

This Document further states in Policy E3 (7) that "Incentives should be put in place to attract economic activities close to dormitory residential areas, facilitate brownfields development (e.g. mixed use development and densification in appropriate locations), and private sector involvement in the rental and gap housing markets."

The Aalwyndal Precinct Plan and the proposed development are planned to be aligned with this policy.

Second Review of the Fourth Generation Integrated Development Plan (IDP) 2019/2020
In general and as pointed out in the Growth Options Study (Provincial Government 2013 check) the Mossel Bay Municipality will be unable to sustain an urban sprawl model and must be aiming

for compact growth in the future. This should mainly take place along the Louis Fourie Road corridor. Furthermore, there are over 8 500 approved or in-process erven, excluding Kwanonqaba, in low-density townships in the urban periphery. The only instance where lateral growth should be contemplated is along the Hartenbos river corridor to Sonskynvallei and Aalwyndal subject to further detailed environmental and precinct planning."

"Aalwyndal is undergoing a precinct planning exercise as it has been identified as the next major development area. It is peripherally removed from town and must consider residential setback lines. It is likely that the current boundary layout of the smallholdings will dictate the overall layout of future development as this reflects the land ownership pattern and therefore, the phasing of development, unless ownership consolidation"

Mossel Bay SDF and other planning tools including the **Aalwyndal Precinct Plan**. Relevant consideration in the assessment of need and desirability.

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.

The guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'); and
- the opportunity for public and specialist input in the decision-making process.

The general objectives of these Guidelines have been taken into account in this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural considerations and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, enhance benefits and promote compliance within the principles of environmental management.

Additionally the Basic Assessment process will be undertaken to ensure I&APs have been afforded the opportunity to comment on the proposed activity and that their comments/inputs/concerns will be taken into consideration during the assessment process

➢ Circular EADP 0028/2014: One Environmental Management System
➢ Guideline for determining the scope of specialist involvement in EIA processes, June 2005.
➢ Guideline for the Review of Specialist Input in the EIA process (June 2005).
➢ Guideline for Environmental Management Plans (June 2005).
➢ Guideline on Alternatives (March 2013).
➢ Guideline on Need and Desirability (March 2013).

➢ Guideline on Generic Terms of Reference for EAPs and Project Schedules (March 2013)
➢ Guideline for the review of specialist input in the EIA process, June 2005.
➢ Guideline for involving biodiversity specialists in the EIA process, June 2005.
➢ Guideline for involving hydrogeology specialists in the EIA process, June 2005.
➢ Guideline for involving visual and aesthetic specialists in the EIA process, June 2005.
➢ Guideline for involving heritage specialists in the EIA process, June 2005.
➢ Guideline for involving social assessment specialists in the EIA process, February 2007.
➢ Guideline for involving economists in the EIA process, June 2005.
➢ Western Cape Land Use Planning Guidelines - Rural Areas, March 2019
➢ Service Stations: Information Document for Environmental Assessment, Department of Environmental Affairs and Tourism, December 2003, First Edition.

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
DEA&DP NO 0017/2020: EIA AND RELATED LICENSING SERVICES AND SUPPORTING PROFESSIONAL SERVICES DURING COVID-19 LOCKDOWN ALERT LEVEL 2. In terms of this Department's Circular No. 0017/2020, the Competent Authority should be approached with a proposed Public participation Plan ("PP-plan") setting out all the public participation steps, to ensure a Public Participation Process ("PPP") which is reasonable and fair. **Screening Report Protocol.** The purpose of this report is to convey the results of the Initial Site Sensitivity Verification and to confirm or dispute the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool for the specific environmental theme being considered.

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.
14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres	The development and operation of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The clearance of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, a filling station, 912 parking bays and streets situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
12 (i)(i)(ii)(vi)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes	The clearance of 15 300 square meters of indigenous vegetation located within a Terrestrial CBA 1, in order to establish a residential development consisting of 72 x 6

	undertaken in accordance with a maintenance management plan. **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; ii. Within critical biodiversity areas identified in bioregional plans	block residential units, 2 x 12 block residential units, a filling station, 912 parking bays and streets situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

Note:

- 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.
N/A		

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.
N/A		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.
Refer to response provided in Section B4.4 above.	
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.
The site is zoned as Residential 1, with one dwelling unit on. The remainder of the site is vacant. In 1988 the Aalwyndal area was earmarked for township development by the then Chief Directorate Local Government and the decision was Gazetted on 15 April 1988. In 1995-2004 the Aalwyndal area was established with comments and approvals from all relevant institutions, departments and Mossel Bay Municipal Council. The area was zoned residential although the property sizes were between 5 and 15 hectares. An Application for higher density residential development and the filling station will be submitted to the Mossel Bay Municipal Council.	
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.
The Mossel Bay Municipal Spatial Development Framework included the Aalwyndal area into the Urban Edge and earmarked the area as an intensification area to achieve a denser residential urban environment. The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community. It was recommended that a Precinct Plan be developed to optimize the available space to achieve the intensification required to make Mossel Bay more sustainable. The SDF was public participated and approved by the Mossel Bay Municipal Council as guide document. (CNDV Africa. 2017:398-422, 478-488).	

4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.

The Western Cape Provincial Spatial Development Framework FINAL REPORT | March 2014 defines SPATIAL EFFICIENCY as "*Efficiency relates to the form of settlements and use of resources - compaction as opposed to sprawl; mixed-use as opposed to mono-functional land uses; residential areas close to work opportunities as opposed to dormitory settlement, and prioritisation of public transport over private car use. When a settlement is compact higher densities provide thresholds to support viable public transport, reduce overall energy use, and lower user costs as travel distances are shorter and cheaper.*"

This Document further states in Policy E3 (7) that "*Incentives should be put in place to attract economic activities close to dormitory residential areas, facilitate brownfields development (e.g. mixed use development and densification in appropriate locations), and private sector involvement in the rental and gap housing markets."*

The Aalwyndal Precinct Plan and the proposed development are planned to be aligned with this policy.

4.2	The Integrated Development Plan of the local municipality.

The Second Review of the Fourth Generation Integrated Development Plan (IDP) 2019/2020 states the following:

"*In general and as pointed out in the Growth Options Study (Provincial Government 2013 check) the Mossel Bay Municipality will be unable to sustain an urban sprawl model and must be aiming for compact growth in the future. This should mainly take place along the Louis Fourie Road corridor. Furthermore, there are over 8 500 approved or in-process erven, excluding Kwanonqaba, in low-density townships in the urban periphery. The only instance where lateral growth should be contemplated is along the Hartenbos river corridor to Sonskynvallei and* ***Aalwyndal*** *subject to further detailed environmental and precinct planning*."

"*Aalwyndal is undergoing a precinct planning exercise as it has been identified as the next major development area. It is peripherally removed from town and must consider residential setback lines. It is likely that the current boundary layout of the smallholdings will dictate the overall layout of future development as this reflects the land ownership pattern and therefore, the phasing of development, unless ownership consolidation"*

4.3.	The Spatial Development Framework of the local municipality.

The Mossel Bay Municipal Spatial Development Framework included the Aalwyndal area into the Urban Edge and earmarked the area as an intensification area to achieve a denser residential urban environment. The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community. It was recommended that a Precinct Plan be developed to optimize the available space to achieve the intensification required to make Mossel Bay more sustainable. The SDF was public participated and approved by the Mossel Bay Municipal Council as guide document. (CNDV Africa. 2017:398-422, 478-488).

4.4.	The Environmental Management Framework applicable to the area.

According to the Screening Report generated, no intersections with EMF areas were found.

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

The site is part of the Groot Brak Dune Strandveld (FS 9) vegetation type which is listed as a threatened ecosystem (Endangered) according to the National List of Threatened Ecosystems (2011).

Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should

retain ecological functioning. The biodiversity investigation that was done by Sharples for the entire Aalwyndal Precinct (which included a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment) concluded that 4% (25 ha) of Aalwyndal is Very High sensitivity areas, 55% (346 ha) High sensitivity areas and 40% 258 (ha) Medium/Low sensitivity areas. The Very High and High sensitive areas makes up 0.4% of the natural vegetation left in the Mossel Bay Municipal area. (Sharples, J. 2019: 13-25).

According to the BGIS Land use decision support (LUDS) tool's Sensitivity map generated for the site, 100% of the site falls within the Mossel Bay ESA 1 area and approximately 1,95 hectares of the site falls within the Mossel Bay CBA 1.

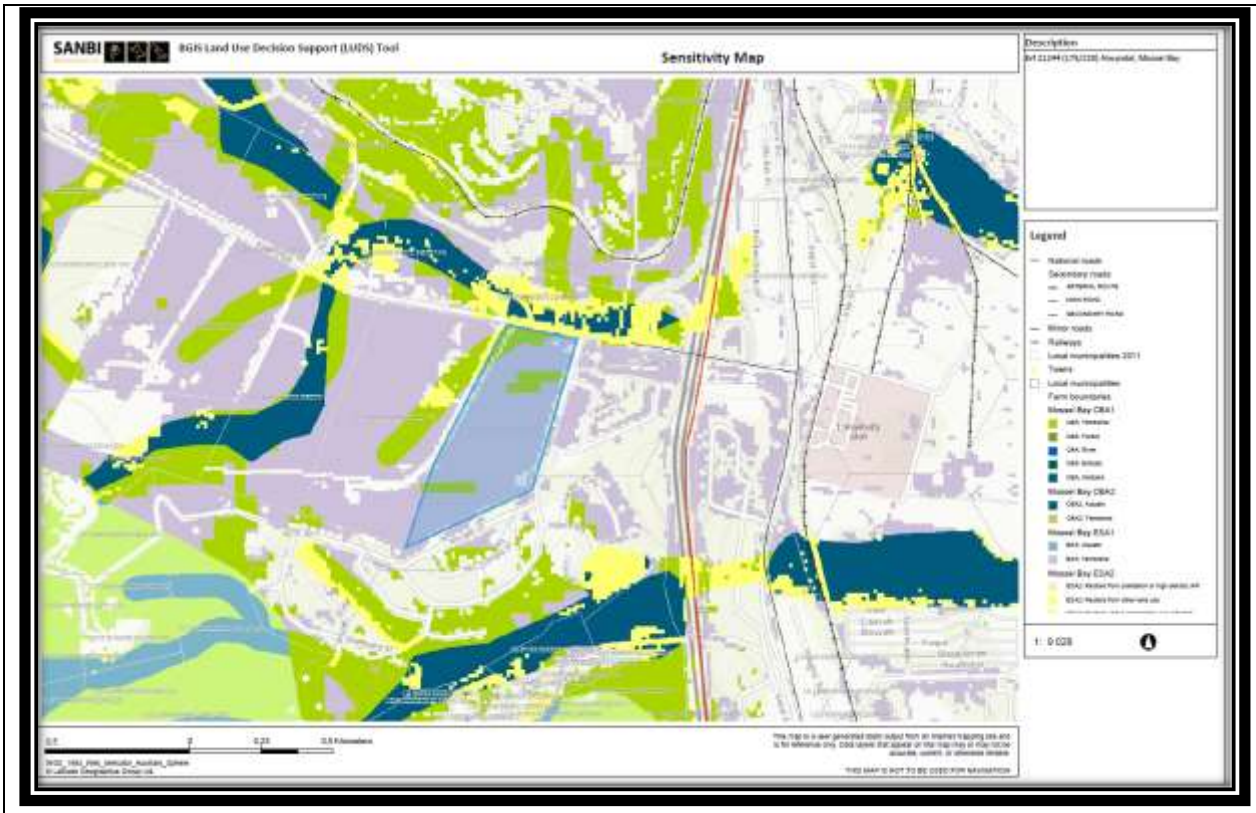
The above mentioned was taken into account and the Specialist has proposed an open space area for the development. See the Layout Plan in this regard.

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

The site is part of the Groot Brak Dune Strandveld (FS 9) vegetation type which is listed as a threatened ecosystem (Endangered) according to the National List of Threatened Ecosystems (2011).

Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. The biodiversity investigation that was done by Sharples for the entire Aalwyndal Precinct (which included a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment) concluded that 4% (25 ha) of Aalwyndal is Very High sensitivity areas, 55% (346 ha) High sensitivity areas and 40% 258 (ha) Medium/Low sensitivity areas. The Very High and High sensitive areas makes up 0.4% of the natural vegetation left in the Mossel Bay Municipal area. (Sharples, J. 2019: 13-25).

According to the BGIS Land use decision support (LUDS) tool's Sensitivity map generated for the site, 100% of the site falls within the Mossel Bay ESA 1 area and approximately 1,53 hectares of the site falls within the Mossel Bay CBA 1. See Figure below.



In 1988 the Aalwyndal area was earmarked for township development by the then Chief Directorate Local Government and the decision was Gazetted on 15 April 1988. In 1995-2004 the Aalwyndal area was established with comments and approvals from all relevant institutions, departments and Mossel Bay Municipal Council. The area was zoned residential although the property sizes were between 5 and 15 hectares. Therefore the current zoning allows owners to construct 2 dwelling units anywhere outside of the 10 m building lines on the properties by only submitting building plans.

The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan. In terms of the Precinct Plan (2018), an Open Space Network has been suggested for the Precinct. See Figure 4. According to this Map, the Northern and Eastern borders of the Application site was identified as being included into the Open Space Network.

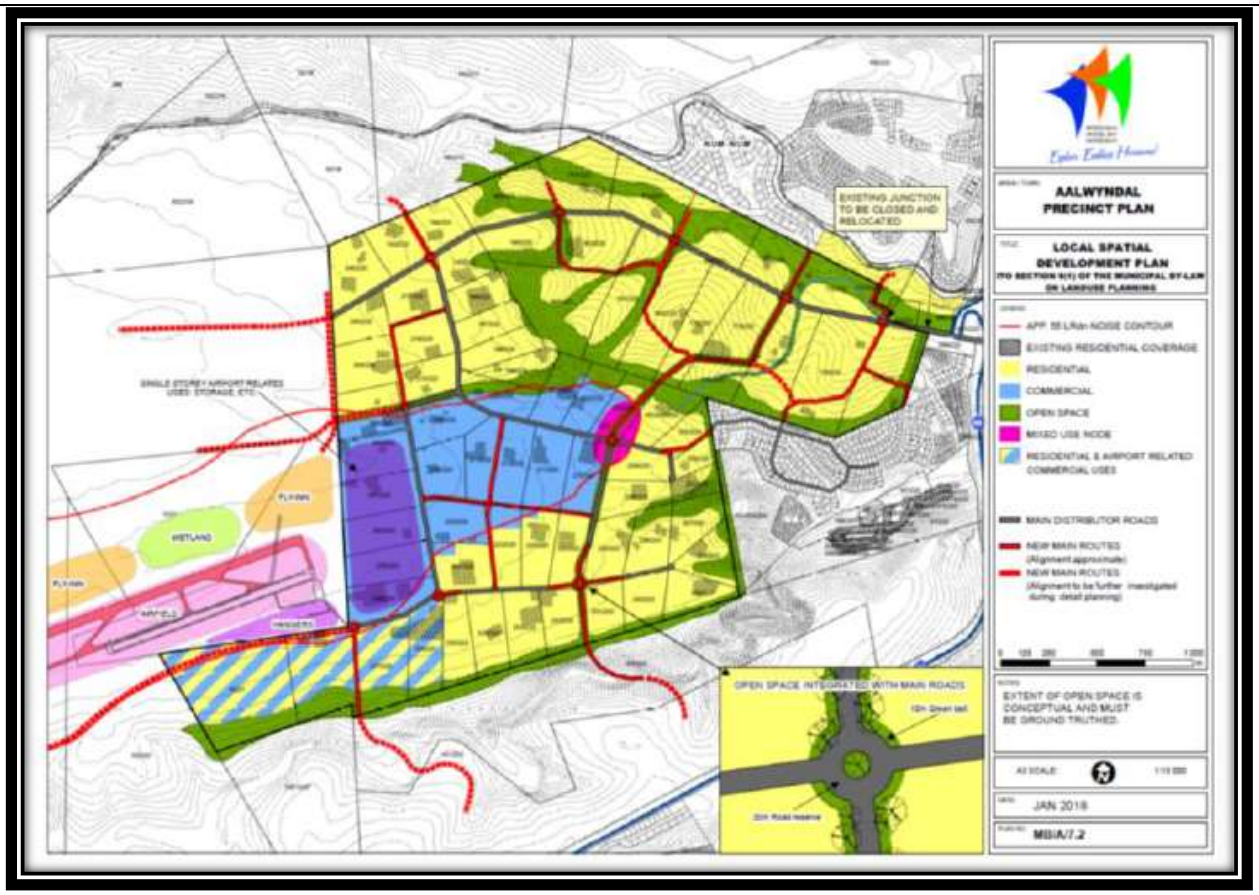


Figure 4: Open Space Network as suggested in the Aalwyndal Precinct Plan

"The Mossel Bay Municipality commissioned a Biodiversity Assessment for the area after it became evident that the high level Critical Biodiversity information from the Western Cape Department of Environment and Development Planning on which the Aalwyndal Precinct Plan was done, was inaccurate. The Biodiversity Assessment was done by combining a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment. The outcome of the study is a Botanical Sensitivity Map with 4% Very High sensitivity areas, 55% High sensitivity areas and 40% Medium/Low sensitivity areas. The recommendation in this report is that only 40% of the area be developed in the Medium/Low sensitivity areas." (Sharples, J. 2019: 13-25). Please see Figure 5 below.

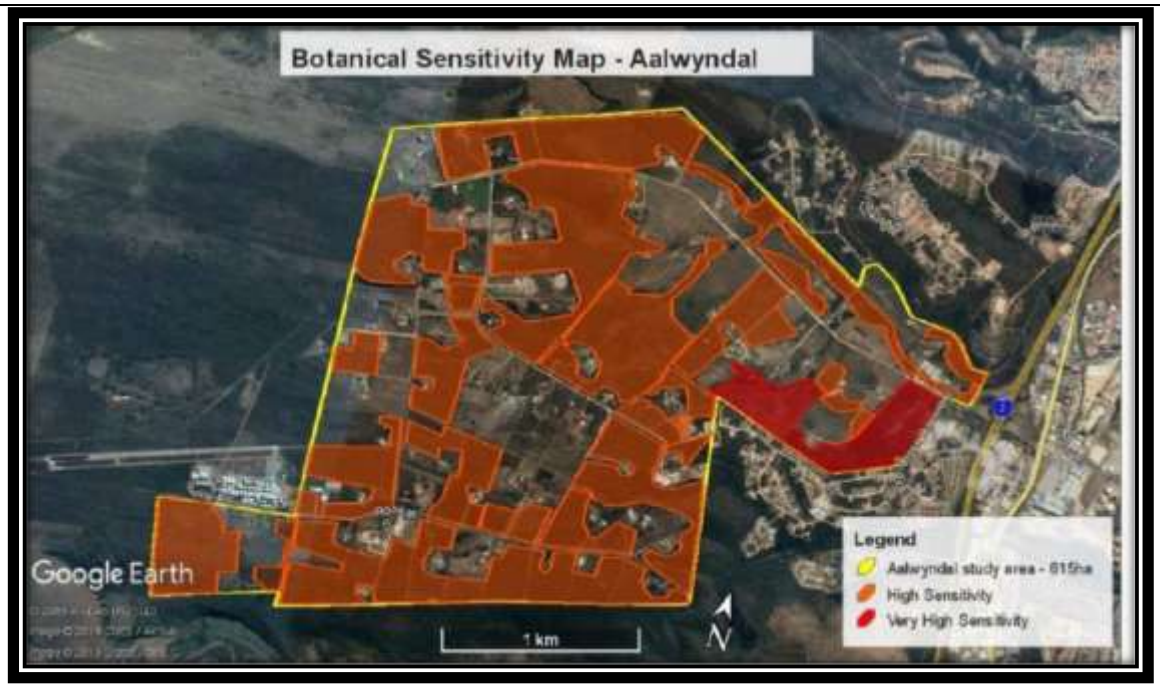


Figure 5: Botanical Sensitivity according to the Biodiversity Assessment for the area (Sharples, J. 2019: 13-25)

As is evident from the map above, the proposed development falls within an area that has been identified by this study as: "Very High Sensitivity" and has led to the inclusion of this area (The Application site) into the Open Space Network proposed for the Precinct Plan. See Figure 6.

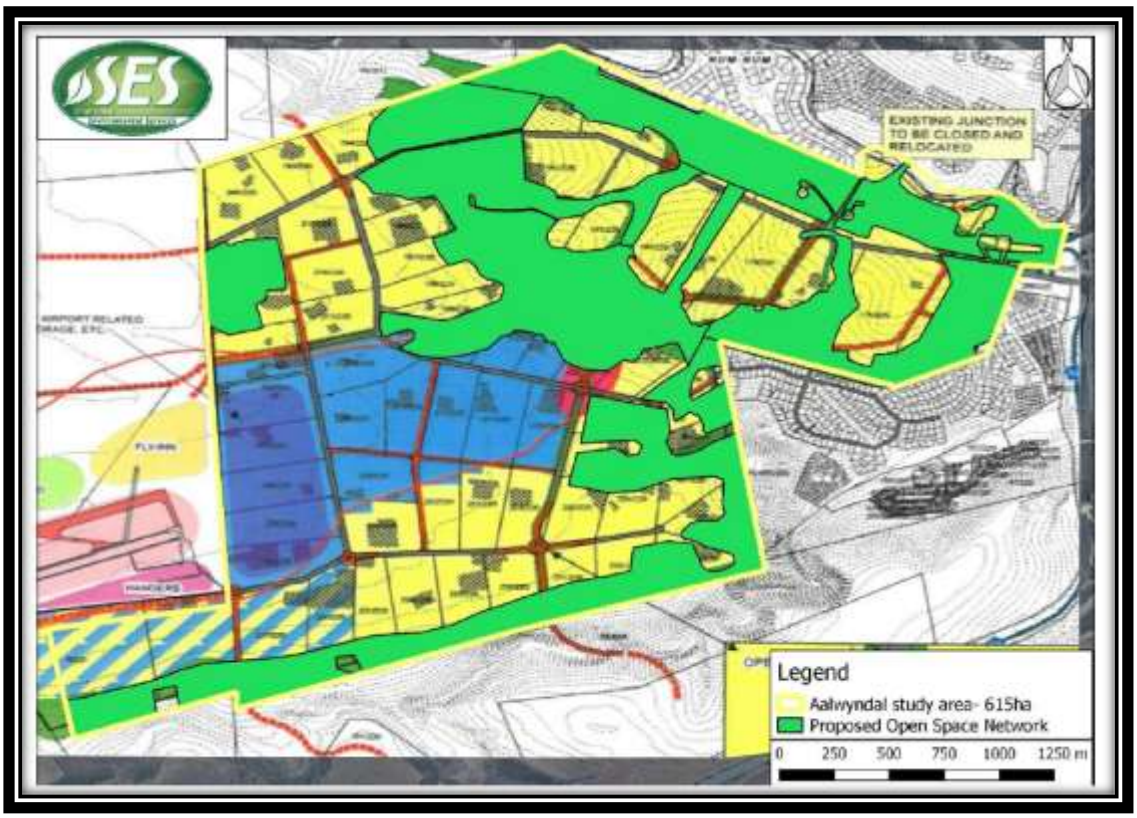


Figure 6: Proposed Open Space Network for Aalwyndal (Sharples, J. 2019: 13-25)

A detailed site specific Fauna and Flora Habitat study was commissioned and was compiled by Mr. Reinier F Terblanche (M. Sc Ecology, *Cum Laude*; Pr. Sci. Nat, Reg. No. 400244/05) from ANTHENE ECOLOGICAL CC. This study concluded that the identified CBA areas as contained in the Western Cape Biodiversity Spatial Plan was not accurate as some of the identified areas were

located in highly disturbed areas and other areas that were considered to be highly sensitive were located only within the ESA demarcated area of the site. In accordance with his findings, he then delineated an open space area for the site that will preserve the more sensitive areas. Please see figure below. The yellow polygons represent the CBA areas as identified in the Western Cape Biodiversity Spatial Plan and represents an area of 1,53 ha. The purple and green polygons represent the area that has been identified to be located within the open space system and is 2,34 ha in extent.

The above mentioned was taken into account and the open space area was incorporated into layout plan for the development. See Layout Plan in this regard.

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

N/A

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.

There has been no change to the Screening Report. The Screening Report has been attached as Appendix I.

9.	Explain how the proposed development will optimise vacant land available within an urban area.

The Mossel Bay Municipal Spatial Development Framework included the Aalwyndal area into the Urban Edge and earmarked the area as an intensification area to achieve a denser residential urban environment. The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community. It was recommended that a Precinct Plan be developed to optimize the available space to achieve the intensification required to make Mossel Bay more sustainable. The SDF was public participated and approved by the Mossel Bay Municipal Council as guide document. (CNDV Africa. 2017:398-422, 478-488).

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.

The site falls within an area that has been identified by the Mossel Bay Local Municipality to be densified. The site is currently zoned "Residential 1" and falls within the urban edge. Services are available in close proximity to the development.

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).

Provision of additional capacity infrastructure as described below does not form part of this application.

Bulk Water Supply for Domestic Usage
Potable water for human consumption and domestic use will be required and will be provided by Mossel Bay Municipality from their water treatment works in Klein Brakriver. Based on the Guidelines for the Provision of Municipal Infrastructure as well as the Water Master Plan for the Mossel Bay Area, it is estimated that the water demand that will be required for domestic usage is as follows:

i) Per annum:105820 kℓ/y
Average per day: 290 kℓ/day

Allowance will be made for bulk supply to the proposed development to allow for peak and fire demand (Fire flow criteria of 15 ℓ/s is applicable).

Bulk water to the proposed development will be supplied from the existing Aalwyndal reservoir. An additional 7,0 ℓ/s pumping supply capacity will be required from the existing Langeberg to Aalwyndal reservoirs. There is however sufficient pumping capacity at the Aalwyndal pumping station and rising main to meet the increased required capacity.

Two reinforcing gravity supply pipelines, 2370 m x 250 mm ø and 680 m x 160 mm ø, between the Aalwyndal reservoir and the proposed development will be required to accommodate the development. The pipelines will supply water to the proposed development as well as the adjacent future development area. A proposed PRV will be required to reduce potential high static pressures in the lower laying areas of the zone. PRV pressure setting to be confirmed during final design.

The Mossel Bay Municipality confirmed that enough water is available to supply in this demand.

Bulk Sewage Removal
All the sewage from the proposed development will gravitate to a proposed new pumping station and rising main. From this pumping station the sewage from the proposed Development will be pumped to the existing Voorbaai pumping station.

From the Voorbaai pumpstation the sewage will be pumped through the existing sewage rising main to the connection point at the existing Municipal outfall sewer. From the connection point the sewage will gravitate through the existing 2 x 450 mm HDPE (Class 12) siphons from Hartenbos to the Inletworks at the Hartenbos Regional Sewage Treatment Works.

The Mossel Bay Municipality confirmed that the necessary capacity is available at their Hartenbos Regional Treatment Works to handle the additional sewage inflow from this development

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.

As noted above, the existing Mossel Bay Urban Edge shows future planning for the next 30-40 years, which is an indication that Mossel Bay will not change the Urban Edge for the next 30-40 years unless there is no developable land left to supply the land use demand. The Aalwyndal area was identified as the perfect area to densify the Mossel Bay Municipal Area by applying the SPLUMA principles and confirmed by several studies and investigations. The Mossel Bay Municipality has a financial sustainability model whereby future development must ensure a sustainable Mossel Bay.

It is evident that the proposed project is aligned with the over-arching planning objectives of the Local Municipality and the Province as a whole by promoting infill development within urban areas and providing employment opportunities in the construction and operational phases. In line with DEA&DP Guideline on Need and Desirability (March 2013), the need and desirability of the proposed project has been considered as follows:

Securing ecological sustainable development and use of natural resources	
How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	The site is part of the Groot Brak Dune Strandveld (FS 9) vegetation type which is listed as a threatened ecosystem (Endangered) according to the National List of Threatened Ecosystems (2011).
How were the following ecological integrity considerations taken into account?: • Threatened Ecosystems; • Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure; • CBAs and ESAs"; • Conservation targets; • Ecological drivers of the ecosystem; • Environmental attributes and management proposals contained in relevant Environmental Management Frameworks; • Environmental attributes and management proposals contained in relevant Spatial Development Framework; and • Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. The biodiversity investigation that was done by Sharples for the entire Aalwyndal Precinct (which included a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment) concluded that 4% (25 ha) of Aalwyndal is Very High sensitivity areas, 55% (346 ha) High sensitivity areas and 40% 258 (ha) Medium/Low sensitivity areas. The Very High and High sensitive areas makes up 0.4% of the natural vegetation left in the Mossel Bay Municipal area. (Sharples, J. 2019: 13-25). According to the BGIS Land use decision support (LUDS) tool's Sensitivity map generated for the site, 100% of the site falls within the Mossel Bay ESA 1 area and approximately 1,95 hectares of the site falls within the Mossel Bay CBA 1. **Vegetation** For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable. Indigenous shrub species that form a dense shrub-stratum at some parts of the site include *Carissa bispinosa*, *Searsia glauca, Gymnosporia buxifolia, Schotia afra* and Grewia occidentalis. Three *Aloe* species have been found at the site – *Aloe arborescens*, *Aloe ferox* and *Aloe maculata*. Other succulents such as *Euphorbia heptagona*, *Carpobrotus edulis*, *Glottiphylum depressum*, *Drosanthemum speciosum, Trichodiadema intosum* and *Gasteria carinata* are also found. Indigenous grass species include *Cynodon dactylon*, *Ehrharta villosa*, *Pentameris pallida*, *Sporbolus fimbriatus* and *Themeda triandra*. Exotic grass species include *Pennisetum clandestinum*, *Briza maxima* and *Phalaris minor*. Other exotic plant species include *Lantana camara* and *Opuntia ficus-indica*. Alien invasive weeds are conspicuous at the small low-lying area at the northwestern corner of the site, while the aggressive alien invasive tree *Acacia cyclops* is visible at some of the edges of this depression. Steep slopes with poor vegetation cover are found at the southern edges of the depression whereas the slopes at a fence north of the
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	

	depression next to the tar road are covered by grasses such as the alien invasive *Pennisetum clandestinum* (Kikuyu) with some herbs and shrubs. The indigenous grass species *Cynodon dactylon* is also present at the depression. Extensive cover of pioneer plant species and alien invasive weeds such as *Atriplex semibaccata* (Australian Saltbush) and *Chenopodium* species at this possibly sporadically inundated area is noticeable. Other alien invasive weeds at the small low-lying area include *Sonchus oleraceus* and *Plantago lanceolata*. Typical wetland vegetation such as sedges, marsh-grasses and hydrophytic herbs, appears to be absent. Overall the small depression appears conspicuously degraded. **Presence of wetlands** No wetlands appear to be present at site. A small depression which is not a wetland and technically ascribes to a very small artificial waterbody where water could gather sporadically is found at a low-lying area at the northwestern corner of the site. **Signs of disturbances** Tracks, fences and alien invasive plant species are found at the site. Roads and urban areas are present at some of the boundaries of the site. A powerline and some hitherto cleared areas are also found. Small scale informal dumping occurs from adjacent residential areas. **Connectivity** Some corridor with indigenous vegetation should remain at the site. If the development is approved cultivation of indigenous plant species will be an asset for urban conservation corridors. **Biodiversity targets and management objectives** If the development is approved cultivation of indigenous plant species will be an asset for urban conservation corridors. Ecosystems and species in particular species that change over relatively fine scales such as often in the Fynbos are likely to become increasingly impacted by climate change. Two widespread plant species which are not Threatened but which are listed as Declining are found at the site: *Boophone disticha* and *Hypoxis hemerocallidea*. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified specialist to the conservation corridor or a suitable site nearby. Though threatened plant or animal species are unlikely to be present at the site, for considerations of the succulent plant diversity, ecological support areas and possible shifts in suitable habitat caused by climate change a continuous conservation corridor is imperative at the site if the development is approved. Such a continuous conservation corridor should only at appropriate restricted areas be interrupted by any roads. Such a conservation corridor if accompanied by the eradication of alien invasive *Acacia*

	cyclops could be beneficial to the quality of life if the development is approved, apart from conserving indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.
What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	During construction, a minimal volume of construction waste would be produced, such as solid waste, concrete and material. A very small portion of the construction waste would likely be hazardous in the form of fuel and / oil collected in drip trays and any contaminated soil resulting from accidental spillage. During the operational phase domestic solid waste will be generated by the residential component of the development and it is anticipated that general activity within the forecourt area of the filling station would typically generate domestic solid waste and effluent. Hazardous waste, such as oily rags and other contaminated material would be generated as part of normal operations. With respect to waste management during construction, an integrated waste management approach would be used, based on the principles of waste minimisation, reduction, reuse and recycling of materials. During operations, general waste would be collected by the municipality on a weekly basis.
How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The existing Mossel Bay Urban Edge shows future planning for the next 30-40 years, which is an indication that Mossel Bay will not change the Urban Edge for the next 30-40 years unless there is no developable land left to supply the land use demand. The Aalwyndal area was identified as the perfect area to densify the Mossel Bay Municipal Area by applying the SPLUMA principles and confirmed by several studies and investigations. The Mossel Bay Municipality has a financial sustainability model whereby future development must ensure a sustainable Mossel Bay. *In general and as pointed out in the Growth Options Study (Provincial Government 2013 check) the Mossel Bay Municipality will be unable to sustain an urban sprawl model and must be aiming for compact growth in the future. This should mainly take place along the Louis Fourie Road corridor. Furthermore, there are over 8 500 approved or in-process erven, excluding Kwanonqaba, in low-density townships in the urban periphery. The only instance where lateral growth should be contemplated is along the Hartenbos river corridor to Sonskynvallei and Aalwyndal subject to further detailed environmental and piecing planning*." "*Aalwyndal is undergoing a precinct planning exercise as it has been identified as the next major development area. It is peripherally removed from town and must consider residential setback lines. It is likely that the current boundary layout of the smallholdings will dictate the overall layout of future development as this reflects the land ownership pattern and therefore, the phasing of development, unless ownership consolidation*"
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were	

explored to enhance positive impacts?	During the construction phase generators and municipal supply would be used. Municipal sources would be used for power supply during the operational phase. The buildings will be designed to be as energy efficient as possible. In addition, energy saving light bulbs will be used and solar geysers will be installed. Landscaping will be done with indigenous vegetation that occurs naturally in the area. Rain water harvesting will be done.
Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)?	
How will the ecological impacts resulting from this development impact on people's environmental right in terms following: • Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? • Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts? • Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)? • Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area? • Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations? • Describe the positive and negative cumulative	Wetland types appear to be absent at the site (kindly see wetland assessment report). A small depression, which is technically similar to a very small artificial waterbody (not a wetland depression/ pan) of approximately 0.03 ha, possibly excavated in the past and also cut off by tar road elevation, ha is present at the north-western corner of the site. This small low-lying area appears to be hitherto excavated, though shallow. The northern edge of the small area where water may gather during substantial rainfall events is a slightly elevated tar road which in effect cuts of water flow under normal conditions. In the case when excessive water runs down from a shallow valley west of the site and from the surface of tar road and road verge north of the site, water could potentially gather at the shallow depression. Under what would likely be extraordinary circumstances this depression would overflow over the tar road in a northern direction to feed into the non-perennial river north of the site. Technically the depression could be described as a very small artificial waterbody which could be inundated sporadically. Historically this area where the depression occurs was part of a drainage line that ran through the extreme north-western part of the site. This drainage line which starts at the head of the small shallow valley west of the site, has been conspicuously modified in the past by a ground wall (dam), buildings, fences, cleared areas and a tar road, the latter seemingly without culverts in the immediate area. Groot Brak Dune Strandveld (FS 9) which is Endangered. About 40% recognisable as this vegetation type at the site which is then approximately 5,2 ha in extent (the entire site is 12,5746 ha). For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable. Indigenous shrub species that form a dense shrub-stratum at some parts of the site include *Carissa bispinosa*, *Searsia glauca, Gymnosporia buxifolia, Schotia afra* and Grewia occidentalis. Three *Aloe* species have been found at the site – *Aloe arborescens*, *Aloe ferox* and *Aloe maculata*. Other succulents such as *Euphorbia heptagona*, *Carpobrotus edulis*, *Glottiphylum depressum*, *Drosanthemum speciosum, Trichodiadema intosum* and *Gasteria carinata* are also found. Indigenous grass species include *Cynodon dactylon*, *Ehrharta villosa*, *Pentameris pallida*, *Sporbolus fimbriatus* and

ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	*Themeda triandra*. Exotic grass species include *Pennisetum clandestinum*, *Briza maxima* and *Phalaris minor*. Other exotic plant species include *Lantana camara* and *Opuntia ficus-indica.* With the Open Space network that is proposed, most of the sensitive areas will remain intact and will be preserved. No Threatened or Near Threatened plant or animal species are anticipated to the present at the site. Two widespread plant species which are not Threatened but which are listed as Declining are found at the site: Boophone disticha and Hypoxis hemerocallidea. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified specialist to the conservation corridor or a suitable site nearby. Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. In the case of this site a corridor is proposed if the development is approved. In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area. The following is therefore recommended: 1. That a detailed Phase 2 archaeological assessment be conducted on the study area 2. This work needs to be undertaken by a qualified Stone Age archaeologist and needs to be done in conjunction and in sympathy with the ongoing Mossel Bay Archaeological Project (MAP) mentioned earlier 3. The work will included detailed mapping of the area and the Stone Age material located here, as well as the systematic collection of representative Stone Age material from the development area 4. It is also recommended that once development commences in the area that an Archaeological Watching Brief be implemented to ensure that if any possible stratified archaeological remains are exposed that these could be studied by specialists of the MAP.

	During construction, dust and noise would be generated as a result of earthworks. The appointed Contractor would be required to ensure that the generation of dust is minimised by implementing a dust control programme (e.g. wetting of areas being disturbed) to maintain a safe working environment and minimise nuisance for surrounding residents. These activities would be managed in terms of the requirements of the EMPr (section pertaining to construction) (refer to Appendix H). The Contractor would also be required to be familiar with and adhere to any regulations and bylaws regarding the generation of noise and hours of operation. During operation, some noise may be generated. After the assessment the Aalwyndal Mosselbay Development has been rated as a "Low" sensitivity site for the civil aviation theme due to the following main reasons. 1. The development site is located beyond line of sight of the Mossel Bay Aerodrome (FAMO). The Mossel Bay Aerodrome (FAMO) is located on a plateau that is more than 70meters higher than the highest point on the development site. Therefore the site cannot cause any visual interference as well as any radio signal reflections. 2. The site also will cause zero radar interference. Radar is a detection system that uses radio waves to determine the range, angle, or velocity of objects. A radar system consists of a transmitter producing electromagnetic radio waves. These electromagnetic radio waves reflect off the object and return to the receiver, giving information about the object's location and speed. Because the Aalwyndal Mosselbay Development is beyond line of sight the radar will never get any reflections back from this site and can thus not cause any interference. 3. The site will also not interfere with any ground to air communication, any airport radio direction finding equipment as well as any radio transmitting beacons. The geographical area from which the proposed project will theoretically be visible, or view catchment area, is dictated primarily by topography. However, distance, development (buildings), vegetation *and topography* will reduce the actual zone or visual influence that the site and project will have, to a much smaller area. The development site is visible mostly inlands towards the north and west of the site and partly to the south-south-east. A thin line of visibility stretches towards the N2 and the ocean. It must be remembered that existing buildings and vegetation of the built – up areas will screen most of the views and visibility towards the ocean. Visibility is dependant on factors such as: (a) the nature of the proposal; (b) its placement within the landscape; c) the scale of the proposal relative to its context; (d) the detailed design

	(form, massing, aggregation, etc.) as well as (e) the position and distance from which it is viewed. The net effect of these factors is that at (grade) the visual impact of an object will begin to fall away rapidly with increasing distance. Visibility will reduce substantially from 1 km distance, and beyond 5 km, visibility is negligible. According to the specific criteria for visual impact assessments the visibility of the site is local, being *visible from the area less than 5kms* away.
Promoting justifiable economic and social development	
What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?: • The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area. • Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.). • Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.). • Municipal Economic Development Strategy ("LED Strategy").	As noted in the planning context provided in the sections above, the proposed development is considered to be aligned with the overall planning context for the area.
Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	The Mossel Bay municipal area is the second largest local economy within the Garden Route District, with regional gross domestic product amounting to R6.47 billion in 2015. Economic activity in the Mossel Bay municipal area is dominated by the tertiary sector which amounted to R4.6 billion (or 71.7%) in 2015. The tertiary sector is estimated to have grown by 1.9% in 2016, boosted by the finance, insurance, real estate and business services sector and the wholesale, retail trade, catering, and accommodation sector. The finance, insurance, real estate, and business services sector recorded an above average growth rate of 4.9% between 2005 and 2015 and has continuously reported high growth rates post the 2008 recession. The local economy of the Mossel Bay municipal area is driven by the finance, insurance, real estate, and business services sector (27.5%), the wholesale and retail trade, catering, and accommodation sector (17.3%), and the manufacturing sector (15%). Combined, these sectors contribute more than R3.87 billion to the economy. In 2014 and 2015, the finance, insurance, real estate, and business services sector's GDPR growth rate was 3.3 and 4.4% respectively. The sector subsequently decelerated to an estimated GDPR growth rate of 2.9% in 2016. The population of the Mossel Bay Local Municipality stands at 97 050 individuals occupying 29 692 households. Population growth in the municipality has been relatively slow at an

	average annual growth of 0.93% per annum. This is considerably below the average for the Province (2.25%) and that of the Eden District Municipality (1.10%). In the context of demand for fuel, the low growth rate serves to limit the growth potential for new filling stations from the resident portion of the market. It must, however, be acknowledged that the market for fuel is not limited to the residents of the municipality but also includes transient traffic and demand from tourists. While the growth rate is slower than in major urban areas of the province, the population is still expected to rise from 97 050 in 2020 up to 106 430 in 2030 (forecasted), an increase of 9380 individuals or an increase of 9.7% total. The proposed development will provide housing for the area. In terms of the filling station please note the following: The local study area demand model forecasts a demand from the local market of 162 586 litres per month. This refers only to local Mossel Bay residents and does not include transient traffic. This should thus be considered as an extreme lower bound figure for fuel sales at the Aalwyndal filling station. The transient traffic fuel demand model takes into consideration aggregate traffic flow data in the vicinity of the site and thus reflects demand from both the resident and transient market. This model forecasts demand for 401 869 litres of fuel. This is the expected case should the development be implemented successfully with due consideration given to accessibility, visibility, and other standard operational considerations. In more densely populated urban areas these two models would be compared to identify the most likely fuel demand scenario. However, it is the finding of this report that the second model focussing on the transient market provides the most accurate estimation of the future demand for fuel from the Aalwyndal filling station. Total potential fuel sales for the proposed filling station amounts to an average of average monthly demand would be between 401 869 litres per month. This equates to approximately 4.8 million litres per annum. Note that the demand model considers average traffic flows only and does not consider the considerable seasonal increase in traffic over the December / January period. Due to a lack of concrete data on seasonal traffic flows this impact has not been considered. The model thus provides a grounded forecast of the average operational fuel sales of the filling station. This falls within the range of 300 000 – 500 000 litres per month identified as the standard operational range for fuel sales of the typical regional filing station as proposed.

	This section thus finds that a filling station development at Aalwyndal is feasible.
Will the development: • Complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs? • Result in the creation of residential and employment opportunities in close proximity to or integrated with each other? • Reduce the need for transport of people and goods? • Result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport)? • Compliment other uses in the area? • Be in line with the planning for the area? • For urban related development, make use of underutilised land available within the urban edge? • Optimise the use of existing resources and infrastructure? • Consider opportunity costs in terms of bulk infrastructure expansions in nonpriority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement)? • Discourage "urban sprawl" and contribute to compaction/densification? • Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs? Encourage environmentally sustainable land development practices and processes? • Take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.)? • Result in investment in the settlement or area in question that will generate the highest socioeconomic returns (i.e. an area with high economic potential)?	Yes. These aspects are discussed in detail in the paragraphs above.

• Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area? • In terms of the nature, scale and location of the development, promote or act as a catalyst to create a more integrated settlement?	
How were a risk-averse and cautious approach applied in terms of socioeconomic impacts?: • What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? • What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities? • Critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? • Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development (and its alternatives)?	Impacts on the physical Environment is discussed in the Paragraphs above. In addition to these, the socio-economic impacts of the proposed project are limited to nuisance (air quality, noise and visual) and traffic impacts and the provision of economic opportunities. Insofar as possible, local communities would be offered employment opportunities. Mitigation measures have been provided to reduce the impact of nuisance and traffic impacts and site layout designs were amended to alleviate traffic impacts.
How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following: • Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? • Positive impacts. What measures were taken to enhance positive impacts?	Due to the nature and scale of the project, the socioeconomic impacts largely relate to nuisance impacts associated with construction activities. Socio-economic benefits relate to potential employment opportunities during the construction and operational phases.
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were defined by developers, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of Urban Sprawl on sustainability. The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha.

	The site falls within an area that has been identified by the Mossel Bay Local Municipality to be densified. The site is currently zoned "Residential 1" and falls within the urban edge. Services are available in close proximity to the development. Currently the site is vacant and uncontrolled dumping occurs on site. Apart from the safety risk associated with the vacant land, the proposed development may even enhance the aesthetics of the area. This will be as a result of eradication of alien invasive species, the removal of dumped material, the implementation of an open space network and the planting of indigenous vegetation. The location of the filling station will be ideal as this site is situated at the entrance to the Aalwyndal Precinct area and as soon as the area has been developed, this filling station will be ideally located. With the Open Space network that is proposed, most of the sensitive areas will remain intact and will be preserved. No Threatened or Near Threatened plant or animal species are anticipated to the present at the site. Two widespread plant species which are not Threatened but which are listed as Declining are found at the site: Boophone disticha and Hypoxis hemerocallidea. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified specialist to the conservation corridor or a suitable site nearby.
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	Layout Alternatives were produced to ensure that the Open Space system proposed will be functional and will connect to neighbouring sites. The locality of the Filling Station has been moved to ensure that no negative impacts on the traffic occur.
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?	The proposed project would not result in impacts that would unfairly discriminate against any person.
Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	The proposed project layout has been developed to accommodate requirements in terms of vehicle stacking distance to increase safety and the planned Open Space System proposed for the Aalwyndal Precinct Plan. As such, the proposed project is deemed to allow for the "best practicable environmental option" to be selected.
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human	The Layout Plan has accommodated the proposed Open Space system to ensure that the loss of Biodiversity is kept to a minimum.

wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	During the construction and operational phases of the development, employment opportunities will be made available to locals.
What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Please see measures as described in the Environmental Management Programme.
What measures were taken to ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge?	A full Public Participation Process is conducted to ensure that the interests, needs and values of all interested and affected parties are taken into account.
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	

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.

N/A

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

Yes

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

• Department of Agriculture Private Bag X1 Elsenburg 7606 Brandon Layman/Cor van der Walt 021 808 5099 021 808 5092 brandonl@elsenburg.co.za LandUse.Elsenburg@elsenburg.com • CapeNature Private/Bag X6546 George 6530 Colin Fordham 044 802 5313 cfordham@capenature.co.za • CapeNature Private/Bag X6546 George 6530 Annelise Schutte-Vlok 044 203 6300 avlok@capenature.co.za

- CapeNature Private/Bag X6546 George 6530 Natalie Baker 044 802 5326 nbaker@capenature.co.za
- Breede-Gouritz CMA, Rudzani Makahane, RMakahane@bgcma.co.za
- Heritage Western Cape Private Bag X9067 Cape Town 8001 Zethembe Khuluse zethembe.khuluse@westerncape.gov.za
- Department of Transport and Public works Ms Grace Swanepoel 021 483 4669 Grace.Swanepoel@westerncape.gov.za
- Department of Water & Sanitation Private Bag X16 Sanlamhof 7532 D Daniels / N.Ndobeni 021 941 6189 086 585 6935 danielsd@dwa.gov.za ndobenin2@dwa.gov.za
- Mossel Bay local municipality Private Bag X29, Mossel Bay 6500 The MM (Adv Thys Giliomee) 044 606 5000 admin@mosselbay.gov.za
- Mossel Bay local municipality Private Bag X29, Mossel Bay 6500 Jaco Roux 044 606 5071 jroux@mosselbay.gov.za
- Garden Route District Municipality Johan Compion 044 874 6626 jcompion@gardenroute.gov.za
- Western Cape Government: Department of Environmental Affairs and Development Planning – Pollution and Chemicals Management; Zayed Brown, 082 788 1288, zayed.brown@westerncape.gov.za
- Western Cape Government: Department of Health; Manie Abrahams, 044 803 2727, manie.abrahams@westerncape.gov.za
- Fuel Retailers association; Jill Poole, reception@fra.org.za, 0118862664

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

N/A

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

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.

On **24 October 2018** AB Enviro Consult cc consulted with the officials from the Municipality for an informal inception meeting at their offices.

At the meeting with the Municipality it was indicated that the Open Spaces are "**not set in stone**" and that should our investigations proof that the open space must be moved, they will consider any proposals in this regard.

Pre-Application meeting

On **5 February 2020** a pre-application meeting was held. Attendees included the EAP, Mr Kobus Steyn, three representatives from DEA&DP, two representatives from Cape Nature, a representative from Breede-Gauritz CMA, two representatives from the Mossel Bay Municipality, one representative from Road infrastructure planning and one representative from Pollution control.

Preliminary responses and inputs from the EAP in this regard is provided in brackets after each bullet.

Outcomes of the meeting:

- *It was indicated that a Geo-Hydrological study must be done for the filling station.* (It is not perceived that a Geo-Hydrological study would be necessary for the proposed development as with the mitigation measures that are proposed, it will be virtually impossible for the filling station to have any impact on ground water resources of the area.)
- *The impact of the Powerlines intersecting the site on the filling station and residents must be assessed.*

(The Engineer has indicated that there are no specifications or Guidelines in terms of the distance that a filling station may be from a power line other than it should not be located within the servitude.)

- *Public transport must be incorporated into the development plan. (Possible Taxi stops).* (It has been indicated by the developer that a Taxi stop will be incorporated into the layout plan. The Traffic Engineer recommended that: "Gatehouses should be designed in such a manner that taxis dropping people off at the entrance to the developments, can safely turn around and join the exit lane without having to back up into the surrounding public road network")
- *A Landscape/visual impact assessment is required.*
- *A Socio-economic assessment is required.*
  (The assessment and information as contained in the Precinct Plan developed for the area is deemed sufficient to provide the necessary relevant information for this variable.)
- *The possibility of a water use licence will have to be investigated. If there are any wetlands within 500 meters from the development, it will trigger the National Water Act (Act 36 of 1998). This will trigger further investigations by the Wetland Specialist. The implication will be that he may have to revisit the site and amend his report.*
- *Storm water outlet structures needs to be designed and built to accommodate all of the Aalwyndal storm water that will be discharged at the site's discharge point. This will trigger a possible Water Use Licence and additional Listed Activities in terms of the 2014 EIA Regulations.*
  (Bulk infrastructure, including bulk stormwater infrastructure does not form part of this application. Stormwater will connect to bulk infrastructure that will be provided at the boundary of the site.)
- *Storm water retention structures/plans needs to be designed and incorporated into the development. These may also include rain water harvesting and SADS.*
  (This will be done as part of the detail designs and storm water management plan that will be submitted to the Local Municipality for their approval.)
- *A storm water management plan needs to be designed.*
  (This will be done as part of the detail designs and storm water management plan that will be submitted to the Local Municipality for their approval.)
- *The access roads on the northern and western boundary of the site needs to be designed and constructed by the Applicant. This will have to be done in corporation with the adjacent land owner. As no servitudes exist for these roads (Especially the western road) the position of this road needs to be determined. It cannot be taken for granted that it will be located on the neighbouring erf.*
  (The main access to the proposed development will be from Aalwyn Road and the proposed new regional road upgrades. It is planned that Henning Street be closed in the future. For the first phase of the development, this road (Henning Street will be used to gain access. Once again, bulk infrastructure does not form part of this application.)
- *Mr Swanepoel from DEA&DP raised the question to the Municipality that if they have indicated that the proposed site is located within a very high sensitive biodiversity area and also within their proposed open space plan for the area, how will he be able to consider this application favourably?*
- *Mr Roux from the Municipality responded by saying that their plan is only a proposal and that their assessment of the area was not on such a small scale as ours. If our investigation prove that the site can be developed they will support the application. He has also indicated that they are not prepared to amend their open space plan as it only serves as a guideline.*

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).

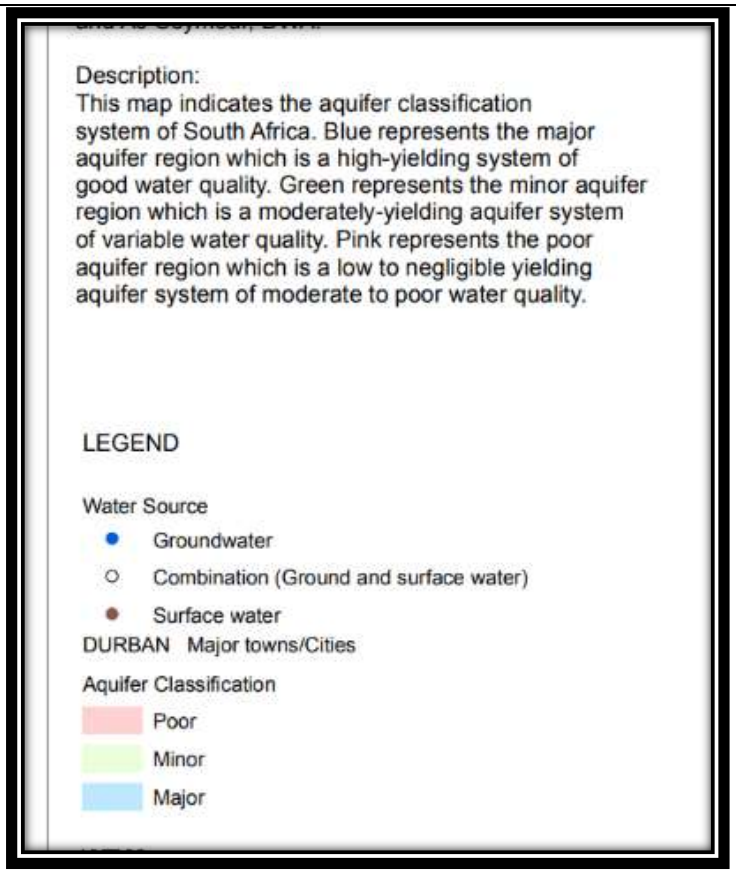
SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

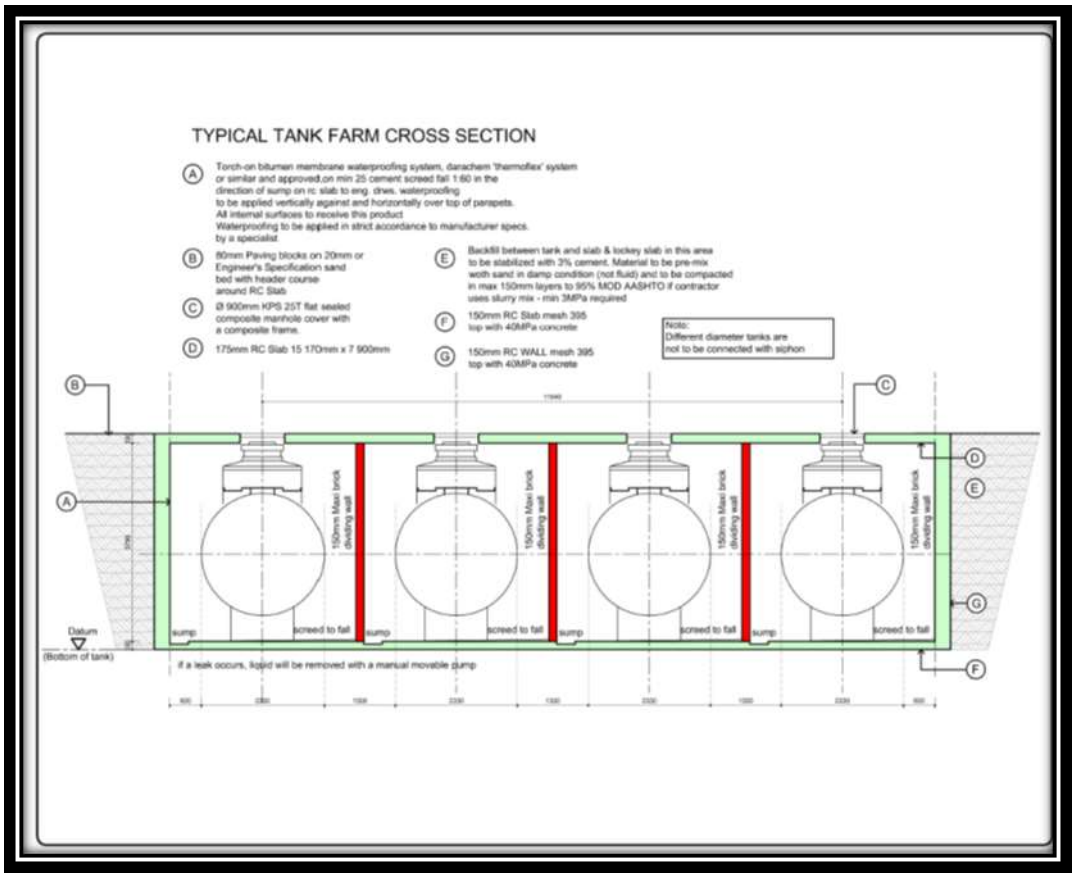
1. Groundwater

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.		

According to the Aquifer Classification Map of South Africa (Data Sources: This map is based on the Borehole Prospects map provided by JR Vegter, Hydrogeological Consultant and AJ Seymour, DWA) (This map indicates the aquifer classification system of South Africa.) Mossel Bay is Located on a minor aquifer region which is a moderately-yielding aquifer system of variable water quality represented by green. See Figure below.



In relation to the Service station and underground fuel storage tanks, the following detailed designs are proposed:



Typical Tank Farm Layout

Monitoring wells are proposed to either side of the tanks to ensure that leaks are detected in a timely manner. Containment elements are proposed concrete slab minimum 74mm concrete bedding/blinding concrete grade 15/19. Cement is proposed stabilised backfill in 150 mm layers, top slab 150mm thick to engineer's details.

Even though the development poses a risk of contamination, sufficient mitigation and management measures exist and can be implemented to ensure the environmental sustainability and viability of the development.

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 the Geotechnical Investigation – Aalwyndal Housing Development – Erf 21244 – GT/104/19 Final Report Amended V1.1 groundwater was not encountered in any of the test pits excavated across the site.

There is the possibility that localized saturation of the soil material overlying less permeable material (e.g.: weathered bedrock) may occur throughout the site during and directly after the rainfall season, especially after heavy precipitation events (i.e.: perched water tables).

Areas requiring subsoil drainage will have to be assessed on site during the construction phase of the development. No groundwater seepage was encountered during this investigation, however, if groundwater seepage is encountered during construction, these zones will need to be controlled with effective subsoil drains, particularly where water is likely to gain ingress into the structural layers of roads.

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.		

Alastair Fraser Pr. Eng **from** Fraser Consulting Civil Engineering cc 2005/074572/23 t/a: FRASER Engineers **and** Reinier F Terblanche (M. Sc Ecology, *Cum Laude*; Pr. Sci. Nat, Reg. No. 400244/05) **from** ANTHENE ECOLOGICAL CC

2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.

Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, wetland depressions (pans), seeps and wetland flats appear to be absent at the site. In conclusion no wetlands are found at the site.

A small depression, which is technically similar to a very small artificial waterbody (not a wetland depression/ pan) of approximately 0.03 ha, possibly excavated in the past and also cut off by tar road elevation, is present at the northwestern corner of the site. This small low-lying area appears to be hitherto excavated, though shallow. The northern edge of the small area where water may gather during substantial rainfall events is a slightly elevated tar road which in effect cuts off water flow under normal conditions. In the case when excessive water runs down from a shallow valley west of the site and from the surface of tar road and road verge north of the site, water could potentially gather at the shallow depression. Under what would likely be extraordinary circumstances this depression would overflow over the tar road in a northern direction to feed into the non-perennial river north of the site. Technically the depression could be described as a very small artificial waterbody which could be inundated sporadically. Historically this area where the depression occurs was part of a drainage line that ran through the extreme northwestern part of the site. This drainage line which starts at the head of the small shallow valley west of the site, has been conspicuously modified in the past by a ground wall (dam), buildings, fences, cleared areas and a tar road, the latter seemingly without culverts in the immediate area.

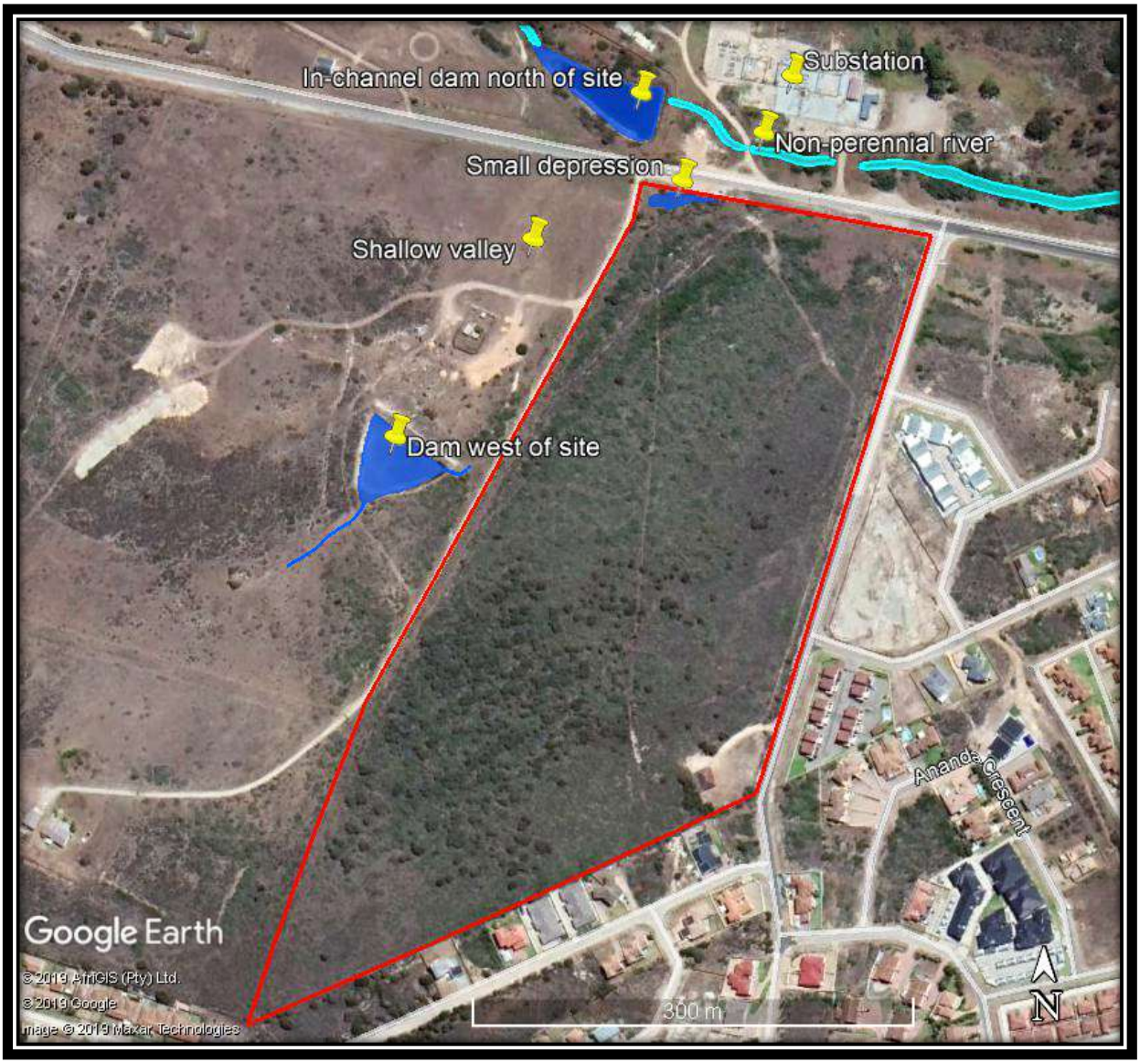
Excessive sheet flow from the shallow valley west of the site and also into the small excavated area could lead to water running over the tar road north of the site. If the development is approved a proper stormwater system could free and restore some water flow to the non-perennial river north of the site.

A non-perennial river is present north of the site and south of a substation. A small in-channel dam is present at this watercourse north of the site. Riparian vegetation at this non-perennial river consists

of a mixture of indigenous and alien vegetation. This non-perennial river is converted into furrows/ canals downstream before reaching an estuary at the Indian Ocean. The non-perennial river outside the site remains an important conservation corridor in the larger area which emphasises the importance of a proper stormwater system at the site.

An artificial waterbody, a dam with a ground wall, exists west of the site and appears to be seasonal and dry for much of the time. This seasonal dam appears to limit water flow down the shallow valley beneath it. Over decades since the ground wall of this dam has been built and significant ecological disturbances below the ground wall took place the hydrology of the drainage line has probably been substantially modified in particular in an area with relatively low rainfall and limitations to water that reaches downhill.

Conspicuous ecological disturbances are present below the ground wall of the dam west of the site. The area where the ground wall is present is visibly poor in vegetation cover. Hitherto cleared areas, fences, buildings and implements are present below the dam wall to the extent that the drainage is difficult to recognise. Aggressive alien invasive *Acacia cyclops* is conspicuous at the fringes of the artificial dam west of the site. A spillway outlet is present at the northeaster limit of the dam.



Indications of watercourses at and near the site.

Light blue outline and shading	Non-perennial river north of site

	Blue outline and shading	Artificial waterbodies/ areas where water could gather

ADDENDUM TO ENGINEERING GEOLOGICAL INVESTIGATION

Geotechnical Site Classification
These specialist studies have clearly defined the extent of the flood lines and marshy areas, proving that the inferred non-perennial stream indicated on Figure 6 of the Geotechnical report, does not intersect the site as previously indicated and as such the investigated site does not pose any risk of being exposed to elevated volumes of surface water runoff, that could lead to localized flooding. There is however a localized depression in the north western corner, that could lead to ponding of surface water.

Due to these specialist studies, changes to the zoning of the site (specifically Zone D) will occur. The following changes are deemed to more accurately define the on-site conditions and should be accepted as correct.

The major change that these findings bring to the geotechnical report is the shifting of the indicated non-perennial drainage feature. Through the evidence provided it can now be assumed that this drainage does not intersect or have any influence on the investigated area. The minor depression in the north western corner will lead to ponding of surface water during high rainfall. Surface drainage measures needs to be implemented as described in the original report.

Please refer to the updated table 5 and Figure 6 below, for the updated geotechnical zoning of the site.

The conclusions, recommendations, and opinions presented in this report addendum are based on evidence provided by the specialist studies. Terra Geotechnical carries no liability for the changes made due to the specialist input. Except as modified herein, the conclusions and recommendations presented in our previous report dated August 12, 2019 also apply to this report addendum.

Drainage
An important factor in the promotion of a stable site is the control and removal of both surface and ground water from the site. It is important that the design of the storm water management system allow for the drainage of accumulated surface water. Disposal of storm water should in any case conform to the Department of Water Affairs and Forestry and local authority requirements. This includes the obtaining of water use licenses when necessary.

The report stated that there will be a significant increase in moisture content during periods of high rainfall and the high clay content will render the alluvial soils susceptible to volumetric change (swell) and alternatively shrink during dry periods. It is therefore important that effective drainage is achieved

Surface Drainage
It is recommended that an efficient surface drainage system be installed around all structures and along all roads throughout the study area in order to:

- prevent the ponding of water next to structures directly after heavy precipitation events, this may lead to differential settlement as the saturated material undergoes densification.
- prevent large-scale changes in soil moisture beneath the structures on a seasonal basis
- prevent the seasonal formation of perched water tables (i.e.: short-term groundwater seepage) within the soil material at shallow depth.
- prevent the possible lateral movement of liquids within the upper soil horizons

The precautionary measures should ideally include:

- the sealing of open ground surfaces by means of either of the following:

▪ the cultivation of a natural soil cover (e.g.: grass)

- compaction of the soil surface
- bitumen or concrete paving
  - the removal of surface water to a distance of at least 1 m beyond structures by means of watertight paving.
  - the removal of surface run-off by means of an efficient surface drainage system.
  - roads should preferably be constructed parallel to the natural surface elevation contours rather than perpendicular to it, in order to reduce run-off velocities

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.		
N/A			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
N/A			
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.		
N/A			

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
Reinier F Terblanche (M. Sc Ecology, *Cum Laude*; Pr. Sci. Nat, Reg. No. 400244/05) **from** ANTHENE ECOLOGICAL CC			
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.		

- National Biodiversity Assessment (2018). The status of South Africa's ecosystems and biodiversity. Synthesis Report. Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries, Pretoria.
- Map of the Farm showing the vegetation units according to the Vlok (2014) fine scale vegetation maps, showing cadastral boundaries, National Freshwater Priority Area data and locations of streams and rivers.
- Pence, G.Q.K. 2017. The Western Cape Biodiversity Spatial Plan: Technical Report. In Prep. Western Cape Nature Conservation Board (CapeNature), Cape Town.
- Botanical Sensitivity Map as contained in the Aalwyndal Precinct Plan
- Mucina, L., Rutherford, M.C., and Powrie, L.W. eds. 2005. Vegetation map of South Africa, Lesotho and Swaziland, 1:1 000 000 scale sheet maps. Pretoria: South African National Biodiversity Institute.
- Mucina, L. & Rutherford, M.C. eds. 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. Pretoria: South African National Biodiversity Institute.

- Vegetation at most of the site consists of sclerophyllous shrub (often with thorns/spikes) mixed with a conspicuous infestation of the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas of the site have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.
- Vegetation composition at the site include a number of succulent species such as three *Aloe* species, *Gasteria carinata, Trichodiadema intosum, Crassula* species*, Cotyledon orbiculata* and *Euphorbia haptagona*.

- Tracks, fences and alien invasive plant species are found at the site. Roads and urban areas are present at some of the boundaries of the site. A powerline and some hitherto cleared areas are also found. Small scale informal dumping occurs from adjacent residential areas.
- Site is part of the Groot Brak Dune Strandveld (FS 9) vegetation type which is listed as a threatened ecosystem (Endangered) according to the National List of Threatened Ecosystems (2011). Parts of the site have been cleared or degraded in the past and is also infested by alien invasive *Acacia cyclops* (Redeye). Site is partly adjacent and increasingly surrounded by urbanised areas. The scope to conserve the small site as a reserve for Groot Brak Dune Strandveld in the long term is small.
- Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. In the case of this site a corridor is proposed if the development is approved (see below).
- No Threatened or Near Threatened plant or animal species are anticipated to the present at the site.
- Two widespread plant species which are not threatened but which are listed as Declining are found at the site: *Boophone disticha* and *Hypoxis hemerocallidea*. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified specialist to the conservation corridor or a suitable site nearby.
- Of concern is the obvious high frequency of the alien invasive declared weed *Acacia cyclops* (Redeye) at most parts of the site. Eradication of alien invasive *Acacia cyclops* at the site is key also when possible dispersal to more sensitive ecosystems in the larger area is considered.
- If the development is approved cultivation of indigenous plant species will be an asset for urban conservation corridors.
- Ecosystems and species in particular species that change over relatively fine scales such as often in the Fynbos are likely to become increasingly impacted by climate change.
- Therefore, though threatened plant or animal species are unlikely to be present at the site, for considerations of the succulent plant diversity, ecological support areas and possible shifts in suitable habitat caused by climate change a continuous **conservation corridor is imperative at the site if the development is approved**. Such a continuous conservation corridor should only at appropriate restricted areas be interrupted by any roads. Such a conservation corridor if accompanied by the eradication of alien invasive *Acacia cyclops* could be beneficial to the quality of life if the development is approved, apart from conserving indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.
- Following the mitigations which will be upheld and planned footprint for development all the impact risks listed above are moderate or low.

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.

The Open Space system that is proposed for the Aalwyndal Precinct Plan will be implemented. It is however proposed to move the Original Proposed Open Space area from the border of the site to the more sensitive area in the middle of the site. This will encourage connectivity with the adjacent areas.

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.

The site is situated at the Fynbos Biome which is represented by Groot Brak Dune Strandveld (FS 9) vegetation type (Mucina & Rutherford, 2006). A brief overview of the vegetation type follows.

Groot Brak Dune Strandveld FS 9

Distribution: Groot Brak Dune Strandveld is present in the Western Cape Province of South Africa. It is found at coastal stretches between the mouth of of the Gouritz River as far east as Victoria Bay near Wilderness, with by far the largest area covering the flats north of Mossel Bay (along the lower reaches of the Groot Brak, Klein Brak and Hartenbos Rivers) and extending up to 17 km from the coast. Altitude 0 – 180 m (Mucina & Rutherford, 2006).

Vegetation & Landscape Features: Flats, undulating landscapes (stabilized dunes) and steep coastal slopes, covered by dense and tall (up to 3 m), spiny, sclerophyllous scrub with gaps

supporting shrublands with ericoids or succulent-leaved shrubs. The graminoid layer is sparse and short (Mucina & Rutherford, 2006).

Geology & Soils: Mostly underlain by the clastic sedimentary rocks of the Kirkwood Formation (Mesozoic Uitenhage Group). In the east, quartzite, schist, and phyllite of the Kaaimans Group (Namibian Erathem) and Cape Granite (edges of high coastal cliffs) are also present. In parts along the coast, these rocks are covered by the unconsolidated dune sand of the Strandveld Formation (Bredasdorp Group). Most important land types Db and Dc (Mucina & Rutherford, 2006).

Climate: MAP varies between approximately 350 mm in the west to 750 mm in the east, with approximately 40% of the rain falling in the summer (October-March) and 60 % falling in the winter (April – September) (Mucina & Rutherford, 2006).

Important Taxa: Small Trees: *Chionanthus foveolatus, Clausena anisata*. Tall Shrubs: *Azima tetracantha*, *Cussonia thyrsiflora*, *Diospyros dichrophylla*, *Euclea racemosa* subsp. *racemosa, Grewia occidentalis, Gymnosporia buxifolia, Maytenus procumbens, Metalasia muricata, Morella cordifolia, Myrsine africana, Mystroxylon aethiopicum, Olea exasperata, Pterocelastrus tricuspidatus, Putterlickia pyracantha, Searsia crenata, Searsia glauca, Searsia longispina, Searsia lucida, Schotia afra* var. *afra, Sideroxylon inerme, Tarchonanthus littoralis.* Low Shrubs: *Asparagus suaveolens, Ballota africana, Carissa bispinosa* subsp. *bispinosa, Chironia baccifera, Clutia daphnoides, Eriocephalus africanus* var. *africanus, Helichrysum teretifolium, Lauridia tetragona, Phylica axillaris, Polygala myrtifolia*. Succulent Shrubs: *Aloe arborescens, Cotyledon orbiculata* var. *dactylopsis, Crassula perforata, Crassula pubescens* subsp. *pubescens, Euphorbia burmannii, Euphorbia mauritanica, Tetragonia fruticosa, Zygophyllum morgsana.* Woody Climbers: *Asparagus aethiopicus, Cissampelos capensis, Rhoicissus digitata.* Woody Succulent Climber: *Sarcostemma viminale*. Semiparasitic Shrubs: *Osyris compressa, Thesidium fragile*. Soft Shrub: *Hypoestes aristata.* Herb: *Commelina africana.* Geophytic Herbs: *Brunsvigia orientalis, Chasmanthe aethiopicus, Hesperantha falcata.* Succulent Herbs: *Carpobrotus edulis, Crassula expansa* subsp. *expansa, Senecio radicans.* Herbaceous Climbers: *Astephanus triflorus, Cynanchum obtusifolium, Kedrostis nana.* Herbaceous Succulent Climber: *Pelargonium peltatum.* Graminoids: *Cynodon dactylon, Ehrharta erecta, Ficinia indica, Panicum deustum, Stipa dregeana.*

Note: Not all of the above listed plant species for the vegetation type occur at the site in the study area.

Vegetation

For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.
Indigenous shrub species that form a dense shrub-stratum at some parts of the site include *Carissa bispinosa*, *Searsia glauca, Gymnosporia buxifolia, Schotia afra* and Grewia occidentalis. Three *Aloe* species have been found at the site – *Aloe arborescens*, *Aloe ferox* and *Aloe maculata*. Other succulents such as *Euphorbia heptagona*, *Carpobrotus edulis*, *Glottiphylum depressum*, *Drosanthemum speciosum, Trichodiadema intosum* and *Gasteria carinata* are also found.
Indigenous grass species include *Cynodon dactylon*, *Ehrharta villosa*, *Pentameris pallida*, *Sporbolus fimbriatus* and *Themeda triandra*. Exotic grass species include *Pennisetum clandestinum*, *Briza maxima* and *Phalaris minor*. Other exotic plant species include *Lantana camara* and *Opuntia ficus-indica*.
Alien invasive weeds are conspicuous at the small low-lying area at the northwestern corner of the site, while the aggressive alien invasive tree *Acacia cyclops* is visible at some of the edges of this depression. Steep slopes with poor vegetation cover are found at the southern edges of the depression whereas the slopes at a fence north of the depression next to the tar road are covered by grasses such as the alien invasive *Pennisetum clandestinum* (Kikuyu) with some herbs and shrubs. The indigenous grass species *Cynodon dactylon* is also present at the depression. Extensive cover of pioneer plant species and alien invasive weeds such as *Atriplex semibaccata* (Australian Saltbush) and *Chenopodium* species at this possibly sporadically inundated area is noticeable. Other alien invasive weeds at the small low-lying area include *Sonchus oleraceus* and *Plantago lanceolata*.

Typical wetland vegetation such as sedges, marsh-grasses and hydrophytic herbs, appears to be absent. Overall the small depression appears conspicuously degraded.

Presence of wetlands
No wetlands appear to be present at site. A small depression which is not a wetland and technically ascribes to a very small artificial waterbody where water could gather sporadically is found at a low-lying area at the northwestern corner of the site.

Signs of disturbances
Tracks, fences and alien invasive plant species are found at the site. Roads and urban areas are present at some of the boundaries of the site. A powerline and some hitherto cleared areas are also found. Small scale informal dumping occurs from adjacent residential areas.

Connectivity
Some corridor with indigenous vegetation should remain at the site. If the development is approved cultivation of indigenous plant species will be an asset for urban conservation corridors.

Habitat and vegetation characteristics

Plant Species

Extinct, threatened, near threatened and other plant species of high conservation priority of the Western Cape Province are listed in Tables 4.2 – 4.8 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) Protected tree species are listed in Table 4.9 of the Fauna and Flora Habitat Report, (Appendix G3 of this report). The presence or not of all the species listed in the tables were investigated during the survey. Presence of Threatened and Near Threatened plant species at the site is unlikely.

Two plant species, which are not threatened but listed as Declining occur at the site: *Boophone disticha* and *Hypoxis hemerocallidea* (Star Flower).

Vertebrates
Mammals

Tables 4.10 – 4.13 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) list the possible presence or absence of threatened mammal species, near threatened mammal species and mammal species of which the status is uncertain, respectively, at the site. Because the site falls outside reserves, large threatened species are absent. No smaller mammals of particular high conservation significance are likely to be found on the site as well.

Birds

Table 4.14 and Table 4.15 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) list the possible presence or absence of threatened bird species and near threatened bird species at the site. With bird species which often have a large distributional range, their presence does not imply that they are particularly dependent on a site as breeding location. Therefore the emphasis in the right hand columns of Table 4.12 and Table 4.13 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) are on the particular likely dependence or not of bird species on the site. No distinct habitat or population of any threatened bird species or any bird species of particular conservation importance have been found.

Reptiles

Tables 4.16 – 4.17 l of the Fauna and Flora Habitat Report, (Appendix G3 of this report) list the possible presence or absence of threatened and near threatened reptile species on the site. There appears to be no threat to any reptile species of particular high conservation importance if the site is developed.

Amphibians

Tables 4.18 – 4.21 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) list the possible presence or absence of threatened and near threatened amphibian species at the site. There appears to be no threat to any amphibian species of particular conservation importance if the site is developed.

Invertebrates
Butterflies

Studies about the vegetation and habitat of threatened butterfly species in South Africa showed that ecosystems with a unique combination of features are selected by these often localised threatened butterfly species (Deutschländer and Bredenkamp 1999; Terblanche, Morgenthal & Cilliers 2003; Edge, Cilliers & Terblanche, 2008). Threatened butterfly species in South Africa can then be regarded as bio-indicators of rare ecosystems.

Tables 4.22 – 4.25 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) list the likely presence or absence of threatened and near threatened butterfly species at the site. There appears to be no threat to any butterfly species of particular conservation importance if the site is developed.

Beetles

Tables 4.26 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) lists the likely presence or absence of threatened and near threatened beetle species at the site. There appears to be no threat to any beetle species of particular conservation importance if the site is developed.

Dragonflies and damselflies

Tables 4.27 of the Fauna and Flora Habitat Report, (Appendix G3 of this report) lists the likely presence or absence of threatened and near threatened dragonfly or damselfly species at the site. There appears to be no threat to any dragonfly or damselfly species of particular conservation importance if the site is developed.

Invertebrates in general

The site provides a microhabitat diversity for a number of indigenous invertebrate species to co-exist. No distinct indications of a habitat or of invertebrate species of particular known conservation concern were found at the site.

Indications of ecological sensitivity at the site.

Red outline and shading	Boundaries of the site
Green outline and shading	Medium-high sensitivity
Orange-brown outline and shading	Medium sensitivity
Light yellow outline and shading	Low sensitivity

Grid references and altitudes were taken at site with a GPS Garmin E-trex 20 ® instrument.
Map information were analysed and depicted on Google images with the aid of Google Earth Pro (US Dept. of State Geographer, MapLink/ Tele Atlas, Google, 2018).

Indications of ecological sensitivity and some ecological indicators at the site.

Red markers: *Gasteria carinata* (Not listed as threatened but regarded as ecological indicator)
Purple markers: A core distribution of the Declining *Boophone disticha* at the site
White markers: Rocks surface above ground

Red outline and shading	Boundaries of the site
Green outline and shading	Medium-high sensitivity
Orange-brown outline and shading	Medium sensitivity
Light yellow outline and shading	Low sensitivity

Indications of ecological sensitivity and proposed conservation corridor at the site.

Red outline and shading	Boundaries of the site
Green outline and shading	Medium-high sensitivity
Orange-brown outline and shading	Medium sensitivity
Light yellow outline and shading	Low sensitivity
Purple outline and shading	Proposed route of conservation corridor

Biodiversity targets and management objectives

If the development is approved cultivation of indigenous plant species will be an asset for urban conservation corridors.

Ecosystems and species in particular species that change over relatively fine scales such as often in the Fynbos are likely to become increasingly impacted by climate change. Two widespread plant species which are not Threatened but which are listed as Declining are found at the site: *Boophone disticha* and *Hypoxis hemerocallidea*. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified specialist to the conservation corridor or a suitable site nearby.

Though threatened plant or animal species are unlikely to be present at the site, for considerations of the succulent plant diversity, ecological support areas and possible shifts in suitable habitat caused by climate change a continuous conservation corridor is imperative at the site if the development is approved. Such a continuous conservation corridor should only at appropriate restricted areas be interrupted by any roads. Such a conservation corridor if accompanied by the eradication of alien invasive *Acacia cyclops* could be beneficial to the quality of life if the development is approved, apart from conserving indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.

Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. In the case of this site a corridor is proposed and have been incorporated into the Layout Plan.

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.

Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. In the case of this site a corridor is proposed and have been incorporated into the Layout Plan.

4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.

For considerations of the succulent plant diversity, ecological support areas and possible shifts in suitable habitat caused by climate change a continuous **conservation corridor is imperative at the site if the development is approved**. Such a continuous conservation corridor should only at appropriate restricted areas be interrupted by any roads. Such a conservation corridor if accompanied by the eradication of alien invasive *Acacia cyclops* could be beneficial to the quality of life if the development is approved, apart from conserving indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.

5. Geographical Aspects

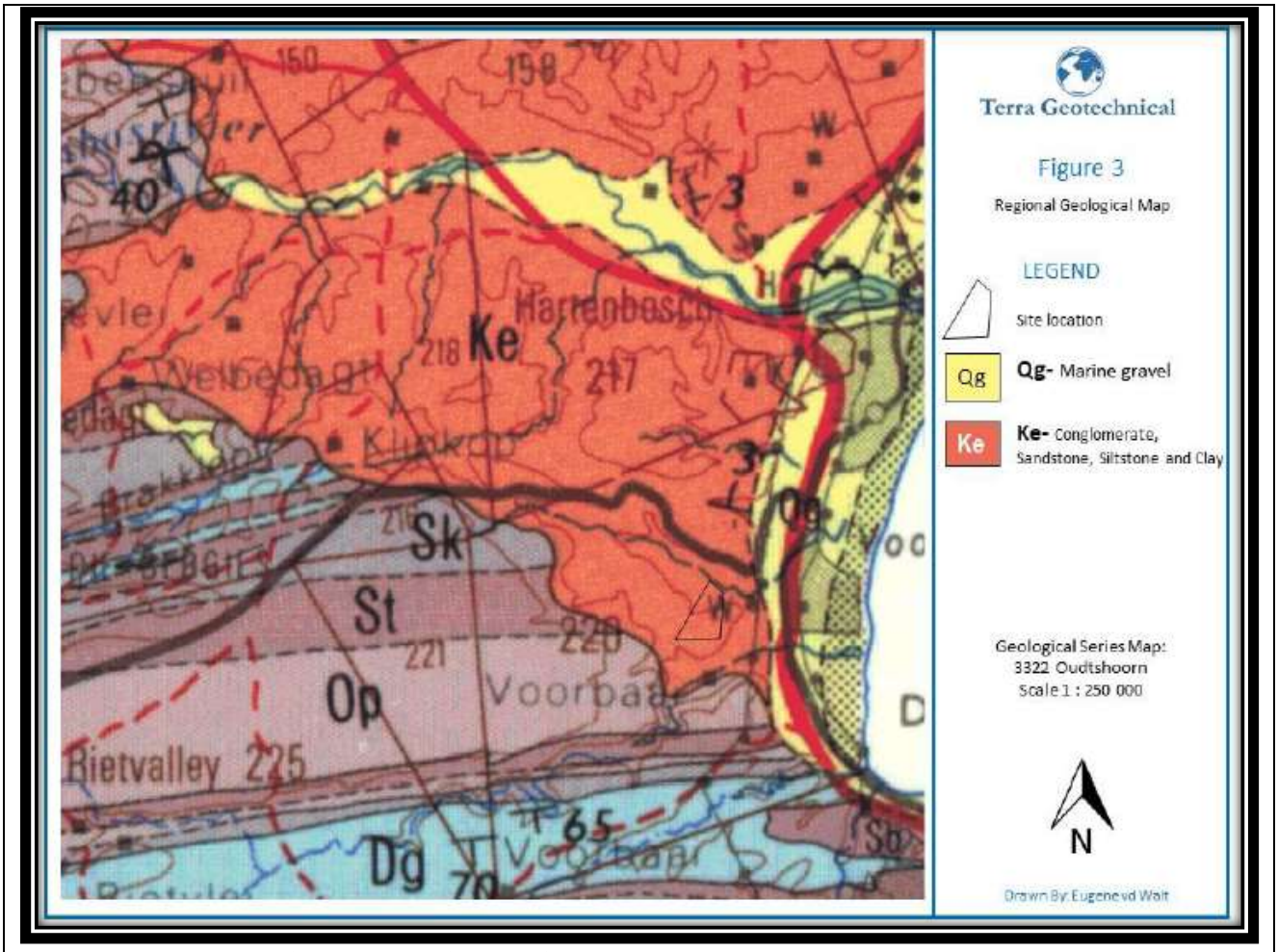
Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.

Development proposals are likely to change the environment within which it will be situated, be it natural or man-made, as well as people's perceptions of that changed environment. The visual, scenic and cultural components of the environment are valuable resources and development proposals have the potential to cause significant impacts.

Regional Geological Setting

According to the geology map of Oudtshoorn 3322, the study area is completely underlain by Conglomerate, Sandstone, Siltsone and Clay of the Enon Formation. This formation consists of reddish-brown, coarse-grained conglomerate containing pebbles, cobbles and boulders, typically of quartzite. It was deposited in the form of alluvial fans by rivers.

The regional geological setting of the study area (minus the surficial soil cover) is illustrated below.



Regional geological setting (Source: Terra Geotechnical Report)

The study area does not reflect any risk for the formation of sinkholes or subsidence caused by the presence of water-soluble rocks (dolomite or limestone), and as such is **not deemed "dolomitic land"**.

Prominent Geological Structures
The available geological information does not indicate the presence of any linear structures, within the vicinity of the site.

Seismic Risk
According to **Kijko et al. (2003)** the regional seismic hazard in the project area can be defined as **LOW**, exhibiting a 10% probability of a seismic event with a peak ground acceleration of approximately 0.1 G within a period of 50 years.

The results of the Geotechnical study reveal that the site exhibits geotechnical characteristics that may require the implementation of specific design and precautionary measures to reduce the risk of structural damage due to adverse geotechnical conditions.

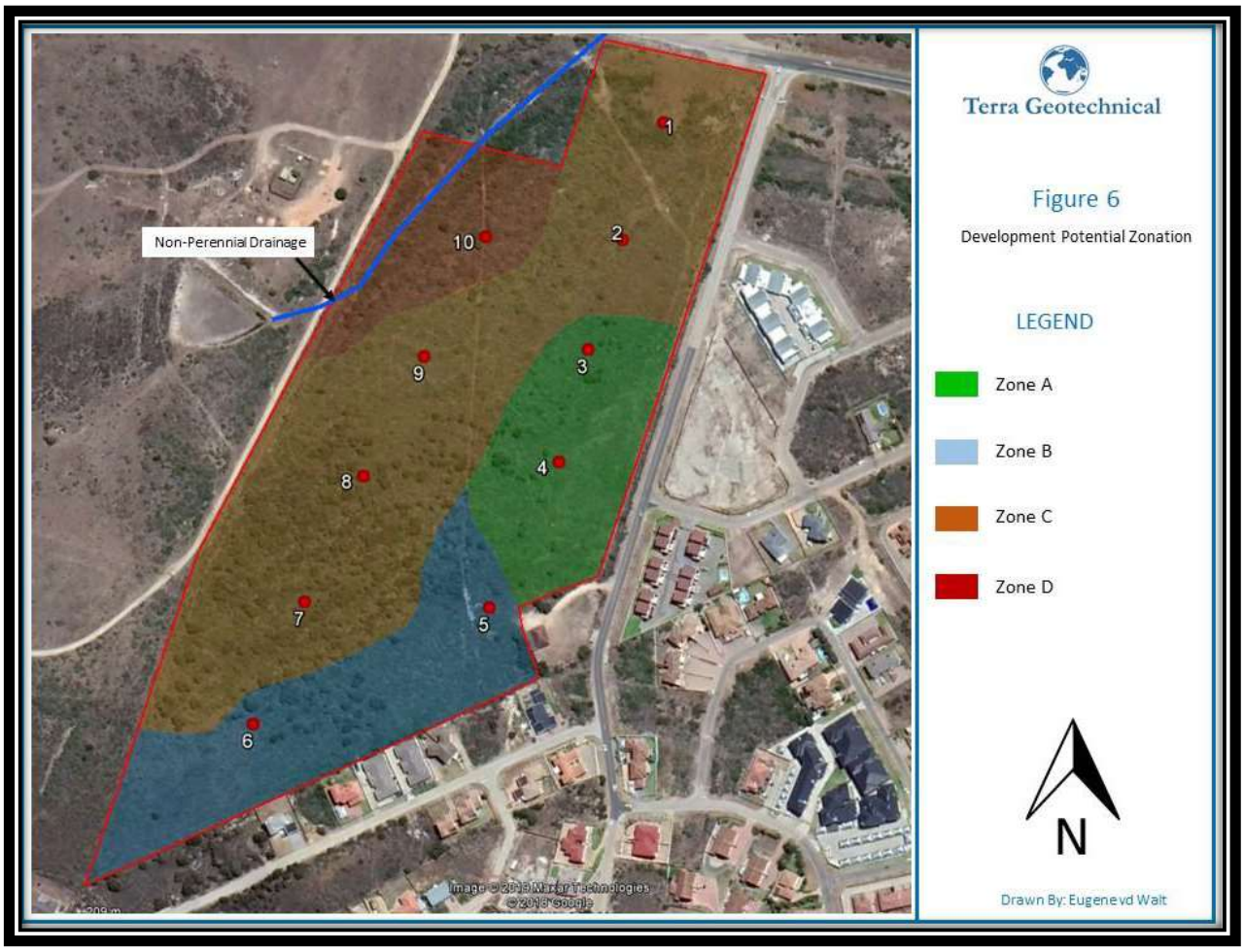
The following constraints needs to be considered

- The occurrence of a **non-perennial river** traversing the north western corner of the site; with expected elevated volumes of surface water runoff and associated erosion within, and adjacent to this channel. The exact extent of this channel and its 1:100 flood line needs to be determined. (Please see addendum to Geotechnical report in this regard.)
- The occurrence of **topsoil material** deemed to be **potentially highly expansive** and **potentially highly compressible**
- The occurrence of residuum material deemed to be **potentially slightly compressible.**

- The scattered occurrence of boulder size cobbles within the soil profile amplifying the predicted degree of **differential movement.**
- **Localized occurrence of difficult excavation** at shallow depth resulting in hard rock excavation of **less than 10%** of the total volume of material to a depth of 1.5 m below the ground surface.
- **Steep slopes** of between 6 and 12 degrees across the majority of the site.
- Across the site, the occurrence of **dense vegetation** and extensive large root systems.

However, these characteristics do not disqualify the site from being used for the proposed development, but rather require the implementation of site-specific precautionary measures.

Site Classification
In the light of the results of this study, the site can be subdivided into **FOUR** geotechnical entities/development potential zones **(Figure 6 of the Geotechnical report and illustrated below).**



Development Potential Zonation (Revision 1)

Please refer to **Table 5 of the Geotechnical report and illustrated below** overleaf which details the sites' zonation.
The table applies to **light foundation masonry residential structures**

Table 5: Site Zonation and Geotechnical Character

Development Potential Zone	NHBRC Site Classification	Partridge, Wood and Brink (1993) Classification	Excavation Class	Slope Stability
Zone A	H1/S1	2C- Moderate soil Heave 2C- Moderate soil Compressibility 2F- Difficulty of excavation to a depth of 1.5 m with between 10 and 40% of the material deemed to be hard rock excavation	Soft Conditions to depths of approximately 1.0 m.	Stable- and gentle slopes
Zone B	H1/S1	2C- Moderate soil Heave 2C- Moderate soil Compressibility 2I- Localized areas with slopes between 6 and 12 degrees	Soft Conditions to a depth of 1.8 m	Stable- with localized steep slopes
Zone C	H3/S2	3C- High soil Heave 2C- High soil Compressibility 2I- Large portions of the site with slopes between 6 and 12 degrees	Soft Conditions to a depth of 1.7 m	Stable- and steep slopes
Zone D	H3/S2	3C- High soil Heave 2C- High soil Compressibility 2I- Localized area of the site with slopes less than 2 degrees 2L – Areas adjacent to a known drainage channel (Exact extent of 1:100 year flood line needs to be determined)	Soft Conditions to a depth of 2.8 m	Stable- with very gentle to gentle slopes

Site Zonation and Geotechnical Character (Revision 1)

Groundwater Occurrence
Zone A, B, C
Groundwater was not encountered in any of the test pits excavated across the site.
There is the possibility that localized saturation of the soil material overlying less permeable material (e.g.: weathered bedrock) may occur throughout the site during and directly after the rainfall season, especially after heavy precipitation events (i.e.: perched water tables).

Zone D
A non-perennial drainage traversing this zone may increase the subsurface waterflow.

Soil Excavatability.
Zone A, C, D
No problems are foreseen during the excavation of **shallow foundation trenches** or **deep service trenches** to a depth of 1.7 m.
Material to a depth of 1.7 m deemed to be **Soft Excavation** (SANS 1200D).

Zone B
No problems are foreseen during the excavation of **shallow foundation trenches,** although **problems** are foreseen with the excavation of **deep service trenches**, due to the occurrence of shallow bedrock.
Between 10 and 40 % of the material to a depth of 1.0 m deemed to be **Intermediate Excavation** conditions (SANS 1200D).

All Zones
The following additional comments on excavation of service trenches apply:
▪ Trenches near the non-perennial streams may have to be dewatered, especially after heavy precipitation events.
▪ The side walls of deep excavations should be shored to prevent injury or death due to side wall failure

Slope Stability
Zone A & D

In the light of the **gentle slopes** and localized **very gentle slopes** across these zones, specialised methods for the stabilisation of cuts into the slopes **are not** deemed necessary.

Zone B & C
In the light of the **steep slopes** across these zones, specialised methods for the stabilisation of cuts into the slopes **are** deemed necessary

Foundation Recommendations and Solutions
In the light of the results of this investigation, the study is deemed suitable for development, provided due cognisance is given to the following:

- The soils covering the site may undergo a degree of **consolidation and heave** (i.e.: loss and gain of volume) under loading or when saturated, requiring that structures be adequately strengthened to prevent structural damage due to **differential movement** beneath foundations.
- Due to its variable nature, it is recommended that the **highly expansive organic rich topsoil** across the site be removed beyond the perimeter of the proposed developments. The decomposition of the organic material within the soil may induce structural damage due to differential movement beneath foundations.
- Due to its variable nature, it is recommended that all the **heaps of fill** material in the north of the site be removed beyond the perimeter of the proposed development.
- Due to the identified drainage feature traversing the north western portion of the site, it is recommended that detailed **1:100 flood line survey** be conducted to identify the extent of this feature
- In areas hosting shallow bedrock; it is recommended that foundations do not span from rock to natural soils or engineered fills, so as to limit differential settlement.
- The presented geotechnical model is based on point data, for this reason, inconsistencies identified during the construction phase of the project should be assessed on site by a qualified individual

It is recommended that EITHER of the following foundation designs be used in the development:

Zone A & B (NHBRC Site Class H1/S1)
1. Modified Normal:
- Reinforced strip footings.
- Articulated joints at some internal and all external doors.
- Light reinforcement in masonry.
- Site drainage and plumbing/service precautions.

2. Soil Raft:
- Remove all or part of expansive horizon to 1.0 m beyond the perimeter of the structure and replace with inert backfill, compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry.

It must be noted that differential settlement is assumed to equal 50 % of the total movement. The relaxation of some of these requirements, e.g. the reduction or omission of steel or articulation joints, may result in a Category 2 level of expected damage.

Zone C & D (NHBRC Site Class H2/S2)
1. Stiffened or cellular raft:
- Stiffened or cellular raft with articulated joints or lightly reinforced masonry.
- Site drainage and plumbing/service precautions.

2. Piled Construction:
- Piled foundations with suspended floor slabs with or without ground beams.
- Site drainage and plumbing/service precautions

3. Soil raft:

- Remove all or part of expansive horizon to 1.0 m beyond the perimeter of the structure and replace with inert backfill, compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings and light reinforcement in masonry.
- Site drainage and plumbing/service precautions

Please note that if a soil raft is not selected, it is recommended that the problems soils (expansive and compressible material) immediately beneath the concrete surface beds be removed and replaced with a competent inert backfill, with depths and quality in accordance with design recommendations.

It must be noted that differential settlement is assumed to equal 50 % of the total movement. The relaxation of some of these requirements, e.g. the reduction or omission of steel or articulation joints, may result in a Category 2 level of expected damage

Please consult a qualified professional for additional options and final designs.

Due to the fact that this report is compiled using point data scattered over the site, provisions must be made to allow for changes in soil quality over short distances. It is recommended that a geotechnical investigation be undertaken by a suitably qualified geo-professional for each of the stands before construction to establish its own geotechnical nature.

Good Construction Practices

Drainage
An important factor in the promotion of a stable site is the control and removal of both surface and ground water from the site. It is important that the design of the storm water management system allow for the drainage of accumulated surface water. Disposal of storm water should in any case conform to the Department of Water Affairs and Forestry and local authority requirements. This includes the obtaining of water use licenses when necessary.

The report stated that there will be a significant increase in moisture content during periods of high rainfall and the high clay content will render the alluvial soils susceptible to volumetric change (swell) and alternatively shrink during dry periods. It is therefore important that effective drainage is achieved

Surface Drainage
It is recommended that an efficient surface drainage system be installed around all structures and along all roads throughout the study area in order to:
- prevent the ponding of water next to structures directly after heavy precipitation events, this may lead to differential settlement as the saturated material undergoes densification.
- prevent large-scale changes in soil moisture beneath the structures on a seasonal basis
- prevent the seasonal formation of perched water tables (i.e.: short-term groundwater seepage) within the soil material at shallow depth.
- prevent the possible lateral movement of liquids within the upper soil horizons

The precautionary measures should ideally include:

- the sealing of open ground surfaces by means of either of the following:
  - the cultivation of a natural soil cover (e.g.: grass)
  - compaction of the soil surface
  - bitumen or concrete paving
- the removal of surface water to a distance of at least 1 m beyond structures by means of watertight paving.
- the removal of surface run-off by means of an efficient surface drainage system.
- roads should preferably be constructed parallel to the natural surface elevation contours rather than perpendicular to it, in order to reduce run-off velocities

Sub Surface Drainage

Areas requiring subsoil drainage will have to be assessed on site during the construction phase of the development. No groundwater seepage was encountered during this investigation, however, if groundwater seepage is encountered during construction, these zones will need to be controlled with effective subsoil drains, particularly where water is likely to gain ingress into the structural layers of roads.

Earthworks
It is recommended that all earthworks be carried out in accordance with SABS 1200 (current version). The fill should be placed in layers not exceeding 200 mm loose thickness and compacted to a minimum of 90% Modified AASHTO maximum dry density.

Cut and fill slopes should be top soiled and planted with grass. This will limit erosion of these slopes and the problems associated with wash-aways of fill embankments.

ADDENDUM TO ENGINEERING GEOLOGICAL INVESTIGATION

Geotechnical Site Classification
These specialist studies have clearly defined the extent of the flood lines and marshy areas, proving that the inferred non-perennial stream indicated on Figure 6 of the Geotechnical report, does not intersect the site as previously indicated and as such the **investigated site does not pose any risk of being exposed to elevated volumes of surface water runoff, that could lead to localized flooding**. There is however a localized depression in the north western corner, that could lead to ponding of surface water.

Due to these specialist studies, changes to the zoning of the site (specifically Zone D) will occur. The following changes are deemed to more accurately define the on-site conditions and should be accepted as correct.

The major change that these findings bring to the geotechnical report is the shifting of the indicated non-perennial drainage feature. Through the evidence provided it can now be assumed that this drainage does not intersect or have any influence on the investigated area. The minor depression in the north western corner will lead to ponding of surface water during high rainfall. Surface drainage measures needs to be implemented as described in the original report.

Please refer to the updated table 5 and Figure 6 below, for the updated geotechnical zoning of the site.

The conclusions, recommendations, and opinions presented in this report addendum are based on evidence provided by the specialist studies. Terra Geotechnical carries no liability for the changes made due to the specialist input. Except as modified herein, the conclusions and recommendations presented in our previous report dated August 12, 2019 also apply to this report addendum.

Development Potential Zonation (Revision 2)

Table 5: Site Zonation and Geotechnical Character

Development Potential Zone	NHBRC Site Classification	Partridge, Wood and Brink (1993) Classification	Excavation Class	Slope Stability
Zone A	H1/S1	2C- Moderate soil Heave 2C- Moderate soil Compressibility 2F- Difficulty of excavation to a depth of 1.5 m with between 10 and 40% of the material deemed to be hard rock excavation	Soft Conditions to depths of approximately 1.0 m.	Stable- and gentle slopes
Zone B	H1/S1	2C- Moderate soil Heave 2C- Moderate soil Compressibility 2I- Localized areas with slopes between 6 and 12 degrees	Soft Conditions to a depth of 1.8 m	Stable- with localized steep slopes
Zone C	H3/S2	3C- High soil Heave 2C- High soil Compressibility 2I- Large portions of the site with slopes between 6 and 12 degrees	Soft Conditions to a depth of 1.7 m	Stable- and steep slopes
Zone D	H3/S2	3C- High soil Heave 2C- High soil Compressibility 2I- Localized area of the site with slopes less than 2 degrees (leads to ponding of surface water)	Soft Conditions to a depth of 2.8 m	Stable- with very gentle to gentle slopes

Site Zonation and Geotechnical Character (Revision 2)

Regional Topography

Regionally, the study area is seen to display a highly undulating surface topography, prominent ridges separated by steeply dipping valleys. The colour coded image below clearly depicts the variable nature of the study area, with the **higher lying ridge structures depicted by the pink** and the **lower lying valley structures depicted by the green and blue colours. The Figure below graphically depicts the elevation and topography of the study area.**

Elevation and topography of the study area (Source: Terra Geotechnical Report)

Site Topography

The site which is located on the northern slope of a localized hill, spans from the gentle sloping summit through the steeply sloping side slope to the gentle sloping foot slope of the hill. Overall, the site is seen to display a variable sloping nature, with the slope generally following a radial sloping nature around the hill summit. The major slope is however in a northerly direction, from the higher lying hill summit in the south (approximately 85 mamsl) towards the lower lying area in the north (approximately 30 mamsl).

Elevation and topography of the site (Source: Terra Geotechnical Report)

The proposed development will be located ***on the side-slope of a hill***

Mitigation measures that will assist in mitigating the visual impact:

- The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the earliest stages to work with the Engineers developing this plan.
- Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site
- Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls
- Retaining as much of the existing, indigenous natural landscape as possible to be encouraged.
- External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation
- No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing"
- A solid boundary walls may only be used between the existing residential built on the most southern boundary.
- Urban Heat Island: The absorbance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged

- Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas

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.		
AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS] from APELSER ARCHAEOLOGICAL CONSULTING			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		

A number of significant known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites on the specific land parcel, but Stone Age archaeological material were identified in the study area during the assessment.

Although the assessment's visibility was hampered by the very dense vegetation covering the area, which also made accessing certain sections difficult, existing footpaths in sections of the area could be used, while small open sections with cleared or trampled vegetation also assisted. A fairly large number of Stone Age artifacts (flakes, cores, tools) were in the process identified located throughout the area. These were either as single objects or in denser scatters of objects in these locations. It is envisaged that many more of these locations are situated throughout the study area, but that due to the dense vegetation they are not visible as a result.

In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area. The following is therefore recommended:

1. That a detailed Phase 2 archaeological assessment be conducted on the study area

2. This work needs to be undertaken by a qualified Stone Age archaeologist and needs to be done in conjunction and in sympathy with the ongoing Mossel Bay Archaeological Project (MAP) mentioned earlier

3. The work will included detailed mapping of the area and the Stone Age material located here, as well as the systematic collection of representative Stone Age material from the development area

4. It is also recommended that once development commences in the area that an Archaeological Watching Brief be implemented to ensure that if any possible stratified archaeological remains are exposed that these could be studied by specialists of the MAP.

Based on the assessment it is recommended that the development be allowed to continue, once the recommended mitigation measures have been implemented.

Stone tools found during the assessment.

A Stone Age core found in the area.

MSA & possible ESA stone tools found.

A broken MSA point.

A range of flakes and tools found during the assessment in one area.

Cores and flake-tools from another area.

A large core found during the assessment.

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.
In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area. The following is therefore recommended: 1. That a detailed Phase 2 archaeological assessment be conducted on the study area 2. This work needs to be undertaken by a qualified Stone Age archaeologist and needs to be done in conjunction and in sympathy with the ongoing Mossel Bay Archaeological Project (MAP) mentioned earlier 3. The work will included detailed mapping of the area and the Stone Age material located here, as well as the systematic collection of representative Stone Age material from the development area 4. It is also recommended that once development commences in the area that an Archaeological Watching Brief be implemented to ensure that if any possible stratified archaeological remains are exposed that these could be studied by specialists of the MAP.

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.

Socio-Economic Profile

This section discusses the local economic environment and presents the demographic profile of the local market area in which the development will be located. The overall assessment of the local economic environment discusses key economic characteristics of the Mossel Bay Local Municipality in terms of regional growth. The demographic profile of the local market area focuses on the population and household sizes, age profile, education and employment, and average annual household income and expenditure.

This information will provide key indicators as to the potential demand for the development that will be derived from the local market area. It will also profile the population that is likely to benefit from the employment opportunities resulting from the development.

Economy
The Mossel Bay municipal area is the second largest local economy within the Garden Route District, with regional gross domestic product amounting to R6.47 billion in 2015. Economic activity in the Mossel Bay municipal area is dominated by the tertiary sector which amounted to R4.6 billion (or 71.7%) in 2015. The tertiary sector is estimated to have grown by 1.9% in 2016, boosted by the finance, insurance, real estate and business services sector and the wholesale, retail trade, catering, and accommodation sector. The finance, insurance, real estate, and business services sector recorded an above average growth rate of 4.9% between 2005 and 2015 and has continuously reported high growth rates post the 2008 recession.

The local economy of the Mossel Bay municipal area is driven by the finance, insurance, real estate, and business services sector (27.5%), the wholesale and retail trade, catering, and accommodation sector (17.3%), and the manufacturing sector (15%). Combined, these sectors contribute more than R3.87 billion to the economy. In 2014 and 2015, the finance, insurance, real estate, and business services sector's GDPR growth rate was 3.3 and 4.4% respectively. The sector subsequently decelerated to an estimated GDPR growth rate of 2.9% in 2016.

Demographic
The population of the Mossel Bay Local Municipality stands at 97 050 individuals occupying 29 692 households. Population growth in the municipality has been relatively slow at an average annual growth of 0.93% per annum. This is considerably below the average for the Province (2.25%) and that of the Eden District Municipality (1.10%). In the context of demand for fuel, the low growth rate serves to limit the growth potential for new filling stations from the resident portion of the market. It must, however, be acknowledged that the market for fuel is not limited to the residents of the municipality but also includes transient traffic and demand from tourists.
While the growth rate is slower than in major urban areas of the province, the population is still expected to rise from 97 050 in 2020 up to 106 430 in 2030 (forecasted), an increase of 9380 individuals or an increase of 9.7% total.

Education
The Mossel Bay Local Municipality are relatively well educated, performing slightly better than the provincial average with 44% of the population have completed a Grade 12 or higher qualification compared to 41% for the Province. Mossel Bay has fewer individuals with tertiary qualifications (13%) vs. the provincial average (14%) but a higher proportion of individuals possessing only a matric qualification (31% vs. 27%).

The proportion of individuals with no schooling, some primary, and complete primary education is dropping as a proportion of society, while those with some secondary, complete secondary, and tertiary qualifications are increasing. This indicates that the Mossel Bay community is becoming steadily more educated.

Education is tied to stronger life prospects and higher individual income levels. It is also strongly correlated with better economic performance. Higher income levels are tied with higher levels of vehicle ownership and as a result is also tied to increased fuel expenditure. Thus, the current education trends are expected to contribute positively to the growth in demand for fuel for the foreseeable future.

Employment
Employment is naturally tied to improved economic performance and higher levels of individual income.

Over the period 2000 – 2020 the working age population in the Mossel Bay region increased from 51 298 to 63 100. The labour force participation rate compares the number of working age individuals actively involved in the economy (i.e., currently working or currently seeking work) to the total working age population. In the year 2000 the labour force participation rate stood at 60.71%. This has grown steadily over the past two decades and now stands at 68.70%

While this is a marked improvement, in this same time unemployment has increased from 9.67% in 2000 to 15.34% in 2020. This indicates that not all new entrants into the worker pool have been able to find stable employment.

The result is that while the number of employed individuals has increased by 30% (or 8 568 individuals) between 2000 and 2020, the number of unemployed has doubled from 3011 in 2000 to 6650 in 2020.

Income & Expenditure

The annual income for households is divided into three categories, namely the proportion of people that fall within the low, middle- and high -income brackets. Poor households fall under the low-income bracket, which ranges from no income to just over R50 000 annually (R4166 per month). An increase in living standards can be demonstrated by a rising number of households entering the middle- and high-income brackets.

Approximately 52,8% of households fall within the low-income bracket, of which 18% have no income. Less than 50% of households fall within the middle to higher income categories, split between 39,2% in middle income group and 8% in the higher income group.

The average household income for households in the Mossel Bay Local Municipality stands at R 152 924 per annum or R 12 744 per month. Note that this is the average figure and, as the figure below shows, most households earn well beneath this mark. A sustained increase in economic growth is needed if the 2030 NDP income target of R110 000 per person, per annum is to be achieved.

Expenditure on non-durable goods and services make up most of the expenditure of local households. Non-durable goods make up 41.22% of household expenditure with expenditure on food and beverages comprising the largest single expenditure item with 27.41% of total household expenditure. Spending on services is the largest expenditure category with 45.55% of household expenditure. Expenditure on accommodation is the largest single item with 11.32% of household expenditure.

Household expenditure has grown steadily over the 10 years between 2010 and 2020 with expenditure in almost all sectors demonstrating steady growth. The table below demonstrates inflation adjusted growth rates per expenditure category.

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

The Western Cape Provincial Spatial Development Framework FINAL REPORT | March 2014 defines SPATIAL EFFICIENCY as "*Efficiency relates to the form of settlements and use of resources - compaction as opposed to sprawl; mixed-use as opposed to mono-functional land uses; residential areas close to work opportunities as opposed to dormitory settlement, and prioritisation of public transport over private car use. When a settlement is compact higher densities provide thresholds to support viable public transport, reduce overall energy use, and lower user costs as travel distances are shorter and cheaper.*"

This Document further states in Policy E3 (7) that "*Incentives should be put in place to attract economic activities close to dormitory residential areas, facilitate brownfields development (e.g. mixed use development and densification in appropriate locations), and private sector involvement in the rental and gap housing markets.*"

The Aalwyndal Precinct Plan and the proposed development are planned to be aligned with this policy.

Currently the site is vacant and uncontrolled dumping occurs on site. Apart from the safety risk associated with the vacant land, the proposed development may even enhance the aesthetics of the area. This will be as a result of eradication of alien invasive species, the removal of dumped material, the implementation of an open space network and the planting of indigenous vegetation.

The location of the filling station will be ideal as this site is situated at the entrance to the Aalwyndal Precinct area and as soon as the area has been developed, this filling station will be ideally located.

Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment.

The proposed development will also have the following benefits:

- The housing shortage of the area will be partially addressed.
- During the construction phase of the proposed development, employment opportunities will be created and thus decrease the unemployment rate of the area.
- During the operational phase of the proposed development, additional employment opportunities will be created.
- The tax base of the Local Municipality I will be broadened.

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

Due to the relatively small-scale and nature of the proposed project, no specific social initiatives are expected to arise from the proposed project. However, it is recommended that the Contractor give preference to employing people from nearby communities during the construction phase and that the Operator of the fuel station give preference to employing people from nearby communities during operation. It is recommended that these conditions be included in the construction contract and in the deed of sale of the fuel station / operation contract.

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.

During construction, dust and noise would be generated as a result of earthworks. The appointed Contractor would be required to ensure that the generation of dust is minimised by implementing a dust control programme (e.g. wetting of areas being disturbed) to maintain a safe working environment and minimise nuisance for surrounding residents. These activities would be managed in terms of the requirements of the EMPr (section pertaining to the construction phase) (refer to Appendix H). The Contractor would also be required to be familiar with and adhere to any regulations and by-laws regarding the generation of noise and hours of operation.

During operation, some noise may be generated Noise levels will increase as a result of the increased traffic volumes. No other noise nuisance factor impacts are anticipated.

Visually, any new buildings and/or developments will have an impact on its environment in many ways, but especially on the existing visual and scenic environment.

Mitigation measures that will assist in mitigating the visual impact:

- The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the earliest stages to work with the Engineers developing this plan.
- Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site
- Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls
- Retaining as much of the existing, indigenous natural landscape as possible to be encouraged.
- External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation
- No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing"
- A solid boundary walls may only be used between the existing residential built on the most southern boundary.

- Urban Heat Island: The absorbance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged.
- Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas.

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.

The preferred location for the activity has been chosen primarily because it is the only property available to the Applicant. For this reason, location alternatives have not been considered in the Basic Assessment and the preferred alternative is the only alternative that was assessed.

Provide a description of any other property and site alternatives investigated.

The preferred location for the activity has been chosen primarily because it is the only property available to the Applicant. For this reason, location alternatives have not been considered in the Basic Assessment and the preferred alternative is the only alternative that was assessed.

Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.

The preferred location for the activity has been chosen primarily because it is the only property available to the Applicant. For this reason, location alternatives have not been considered in the Basic Assessment and the preferred alternative is the only alternative that was assessed.

Provide a full description of the process followed to reach the preferred alternative within the site.

N/A

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

The preferred location for the activity has been chosen primarily because it is the only property available to the Applicant. For this reason, location alternatives have not been considered in the Basic Assessment and the preferred alternative is the only alternative that was assessed.

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

N/A

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

Provide a description of the preferred activity alternative.

Third Layout Alternative (Alternative 1/Preferred Alternative)

The Traffic Impact Assessment conducted for the proposed development concluded the following: "*The position of the proposed filing station is not acceptable. It is recommended that the filling station move towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration*."

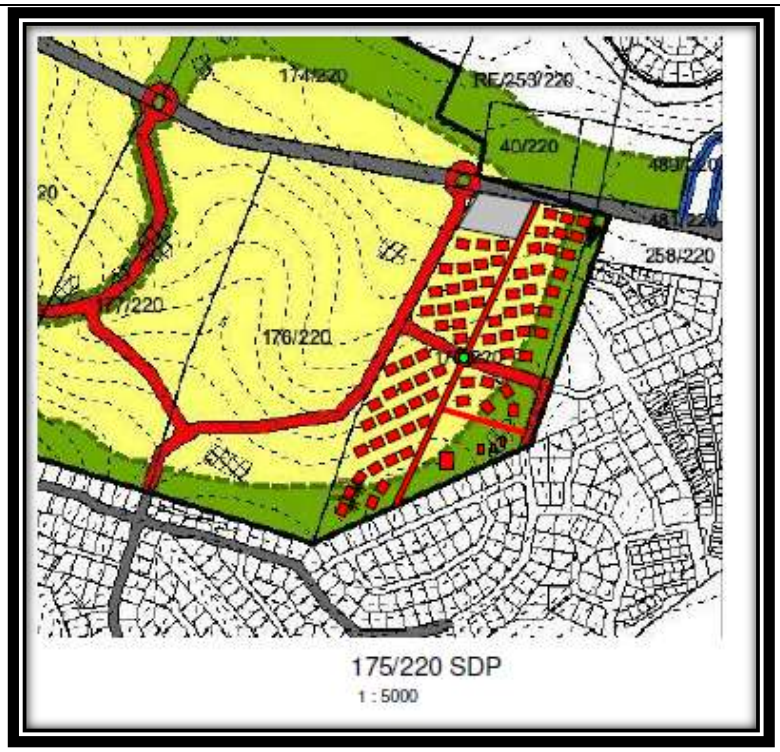
This has led to the third Layout Alternative (which is now considered to be the preferred Alternative). See Figure below.

Layout plan (Revision 3/Alternative 1).

Provide a description of any other activity alternatives investigated.

First Layout Alternative (Alternative 2)

In the Municipalities Precinct Plan for the area, open spaces was identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area. This has led to the first layout alternative. See Figure below.



Map indicating open spaces and first Layout Plan (Revision 1/Alternative 2)

Second Layout Alternative (Alternative 3)
On **24 October 2018**, AB Enviro consult cc conducted a site inspection with the Ecological Specialist. During this visit, officials from the Municipality as well as the client was consulted.

At the meeting with the Municipality it was indicated that the Open Spaces are "not set in stone" and that should our investigations proof that the open space must be moved, they will consider any proposals in this regard.

An Ecological Fauna and Flora Habitat specialist was then appointed to assess the sensitivity of the site and has indeed recommended that the open space be moved and that it will make more sense (From a sensitivity point of view) to have the open space in the middle of the development as illustrated in figure 18 below. Therefore, the layout plan was amended to incorporate these findings. See Figure below for a copy of the second layout plan.

Sensitive area as determined by the Ecological Specialist.

Layout plan (Revision 2/Alternative 3)

Provide a motivation for the preferred activity alternative.

As mentioned above, the Preferred Alternative is a culmination of inputs from Specialist that in the end concluded that the Open Space be moved to the more Sensitive centre of the site and that the *position of the proposed filing station be moved towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration*

Provide a detailed motivation if no activity alternatives exist.

N/A

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

No negative impacts are expected as a direct result of the activity Alternatives. Positive impacts relates to the preservation of the more sensitive central area of the site and improved traffic flow.

1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts

Provide a description of the preferred design or layout alternative.

Third Layout Alternative (Alternative 1/Preferred Alternative)

The Traffic Impact Assessment conducted for the proposed development concluded the following: "*The position of the proposed filing station is not acceptable. It is recommended that the filling station move towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration*."

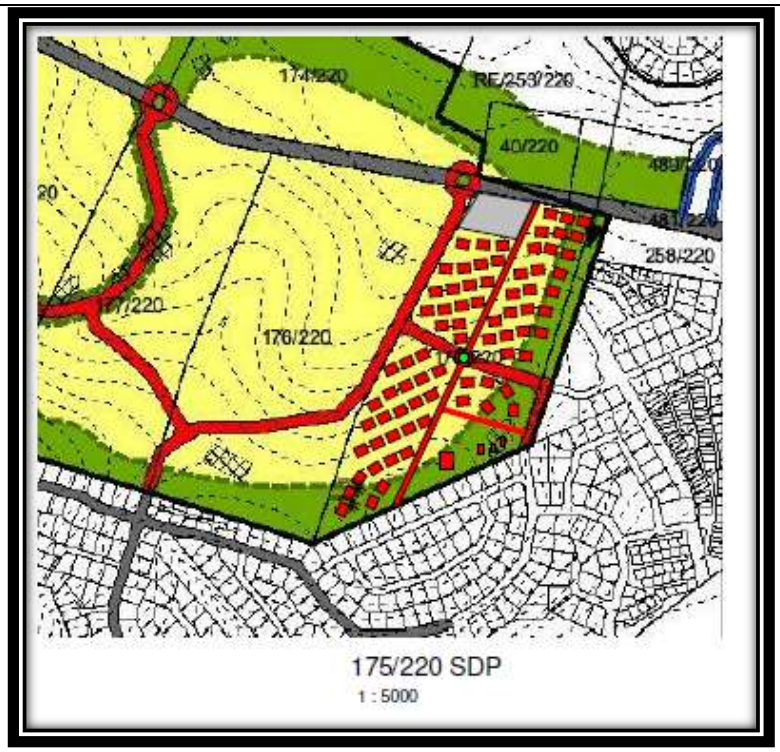
This has led to the third Layout Alternative (which is now considered to be the preferred Alternative). See Figure below.

Layout plan (Revision 3/Alternative 1).

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

First Layout Alternative (Alternative 2)

In the Municipalities Precinct Plan for the area, open spaces was identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area. This has led to the first layout alternative. See Figure below.



Map indicating open spaces and first Layout Plan (Revision 1/Alternative 2)

Second Layout Alternative (Alternative 3)
On **24 October 2018**, AB Enviro consult cc conducted a site inspection with the Ecological Specialist. During this visit, officials from the Municipality as well as the client was consulted.

At the meeting with the Municipality it was indicated that the Open Spaces are "not set in stone" and that should our investigations proof that the open space must be moved, they will consider any proposals in this regard.

An Ecological Fauna and Flora Habitat specialist was then appointed to assess the sensitivity of the site and has indeed recommended that the open space be moved and that it will make more sense (From a sensitivity point of view) to have the open space in the middle of the development as illustrated in figure 18 below. The implication of this was that the layout plan had to be amended. See Figure below for a copy of the second layout plan.

Sensitive area as determined by the Ecological Specialist.

Layout plan (Revision 2/Alternative 3)

Provide a motivation for the preferred design or layout alternative.

As mentioned above, the Preferred Alternative is a culmination of inputs from Specialist that in the end concluded that the Open Space be moved to the more Sensitive centre of the site with the *position of the proposed filing station moved towards the Eastern Site Boundary and access into and out of the filling station be in the form of a Left-In, Left-Out configuration*

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

N/A

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

The following Negative impacts can be expected:

- 9 hectares of indigenous vegetation will be eradicated in order to establish the development.
- Clearing for the construction of the project infrastructure could result in the loss of some of the species of conservation concern.
- The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats.
- Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared for agriculture and development resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.
- Further disruption of the site could exacerbate the infestation of alien species unless these are controlled for. Areas that are disturbed during the construction phase are vulnerable to infestations unless rehabilitated to prevent invasive alien plant species from establishing themselves.
- An area that is currently mostly undeveloped will be transformed to be developed.
- The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.

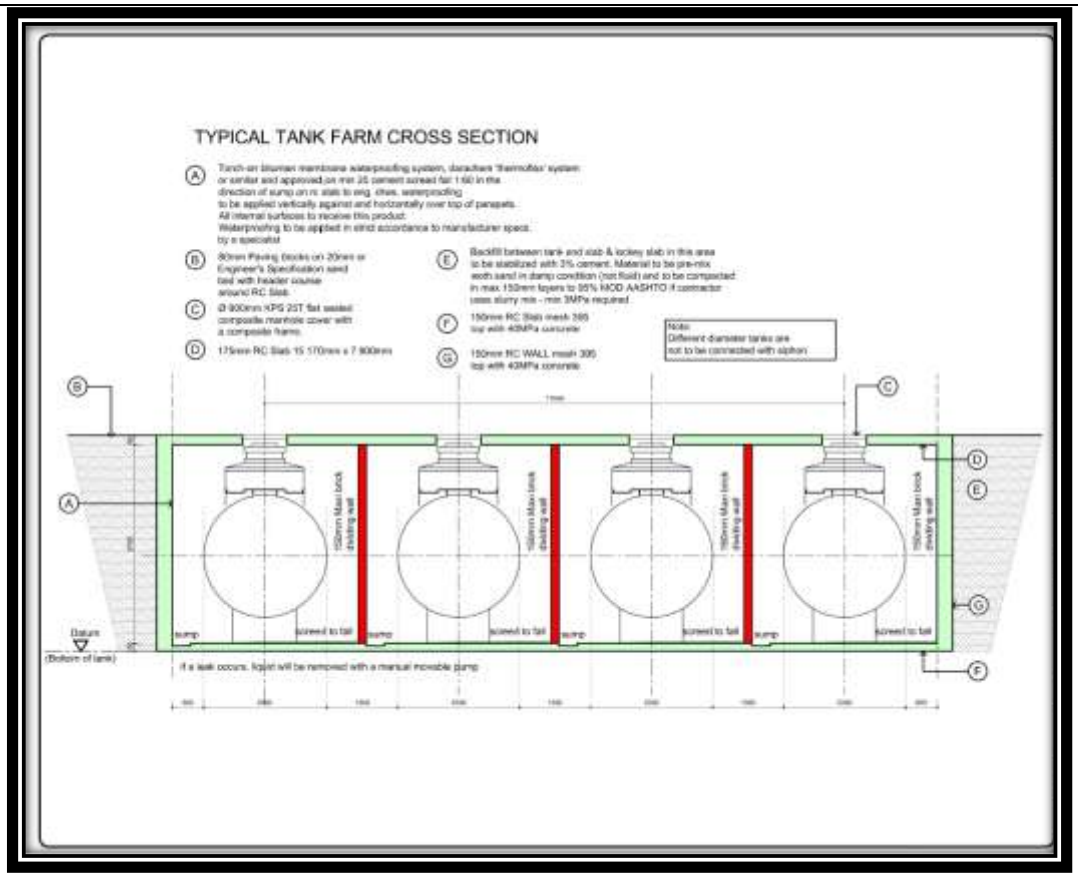
The following Positive impacts can be expected

- The site is already infested with invasive alien species and other weedy species. The implementation of an open space network for the site and the Precinct Plan is proposed. Such a conservation corridor if accompanied by the eradication of alien invasive *species* could be beneficial to the conservation of indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.
- Urban Sprawl will be combatted.
- As this is one of the first development applications for the area, a president will be set for future development in the area.
- As soon as more developers start to develop in the area, services will become available.
- The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community.
- During the construction and operational phase of the development, jobs will be created.
- The tax base of the Mossel Bay Local Municipality will be increased.

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.

Provide a description of the preferred technology alternative:

In relation to the Service station and underground fuel storage tanks, the following detailed designs are proposed:



Typical Tank Farm Layout

Provide a description of any other technology alternatives investigated.
Installing of underground fuel tanks without a sealed concrete bunker.
Provide a motivation for the preferred technology alternative.
Should the tanks leak, the spillage will be contained within the sealed bunker and will not contaminate surface and underground water resources.
Provide a detailed motivation if no alternatives exist.
N/A
List the positive and negative impacts that the technology alternatives will have on the environment.
Negative impacts are expected if the underground tanks are not constructed within sealed bunkers as spills will cause pollution.

1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred operational alternative.
No operational alternatives were identified.
Provide a description of any other operational alternatives investigated.
N/A
Provide a motivation for the preferred operational alternative.
N/A
Provide a detailed motivation if no alternatives exist.
No additional operational alternatives were considered, given that operational activities would be similar to the norm for similar developments
List the positive and negative impacts that the operational alternatives will have on the environment.
N/A

1.6.	The option of not implementing the activity (the 'No-Go' Option).

Provide an explanation as to why the 'No-Go' Option is not preferred.
"The "no-go" alternative … assumes that the activity does not go ahead, implying a continuation of the current situation or the status quo. In a situation where the negative environmental impacts have high significance, the "no-go" alternative takes on particular importance" (DEAT:2004).

The no-go option is assessed in this Basic Assessment process as the option of not implementing the proposed activity. This implies that the proposed residential development and filling station would not go ahead.

The "no-go" alternative typically receives consideration when a proposed activity poses adverse negative impacts to the environment that cannot be successfully mitigated. The proposed activity does not pose any potentially negative environmental impacts that cannot be successfully mitigated. The following considerations also enhance its need and desirability:

- The Mossel Bay area is experiencing a great influx of people. In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were **defined by developers**, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of **Urban Sprawl on sustainability**.

- The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha.

- This proposed development forms part of this area earmarked to combat urban sprawl. If this development is not implemented, the need for affordable housing in the area will not be partially addressed and the practice whereby developers continue to develop areas that are not necessarily sustainable will continue.

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.

No other alternatives were identified

1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.

Layout and Technology Alternatives were considered for the proposed development. As this is the only site available for the Developer, no site Alternatives were considered. The Layout Alternative involved that the Open Space area be moved to the middle of the site and that the Filling Station be moved to the eastern boundary of the site.

It is also preferred that the underground fuel tanks be installed within a sealed concrete bunker. This will ensure that no pollution from the fuel tanks will result.

If the no-go option is implemented, the proposed residential development and filling station would not go ahead and the site would remain vacant until such time as an alternative land-use is identified.

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 Open Space area has been proposed and was incorporated into the Layout Plan. During Construction this area will be considered to be a No-Go Zone in order to ensure that this area remains as unspoilt as possible. See Figure below.

Sensitive area as determined by the Ecological Specialist.

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.

It is the purpose of the prescribed impact assessment process to *inter alia* conduct an assessment of each identified potentially significant impact including cumulative impacts, the nature of the impact, the extent and duration of the impact, the probability of the impact occurring, the degree to which the impact can be reversed, the degree to which the impact may cause irreplaceable loss of resources and the degree to which the impact can be mitigated.

The Integrated Environmental Management Information Series: Impact Significance (DEAT 2002d) states that predictions are based on simplified conceptual models of how natural processes function. Models range in complexity from those that are very intuitive to those based on explicit assumptions about environmental processes.

Criteria that can be used to describe the nature of an impact include:

- Spatial extent;
- Duration of the impact;
- Intensity or severity of impact;
- Status of the impact (i.e either positive, negative or neutral);
- Reversibility (i.e. reversible or permanent);
- Degree of certainty; and
- Mitigatory potential.

A multitude of impact prediction models exist. For purposes of the study a systematic generic and judgemental criteria model that is being illustrated below will be used. As is the case with other models, this specific model has implicit strengths and weaknesses. In the absence of standards set

by law or scientific knowledge, the description of significance is largely judgemental, subjective and variable. This may be seen as an intrinsic weakness. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts. This may be seen as an intrinsic strength.

The assessment methodology used included a desktop analysis of the site, a site visit, inputs from various specialist and identification of impacts. The identified impacts were then assessed using the impact assessment methodology as described below. These assessment methods are considered to be adequate for the basic assessment report.

Impacts were rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Duration (time scale)	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	Local	Confined to study area and its immediate surroundings
	Regional	Region (cadastral, catchment, topographic)
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
Magnitude (Intensity)	Low	Site-specific and wider natural and/or social functions and processes are negligibly altered. ((A low intensity impact will not affect the natural, cultural, or social functions of the environment).
	Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way. (Medium scale impact will alter the different functions slightly).
	High	Site-specific and wider natural and/or social functions and processes are severely altered. (A High intensity impact will influence these functions to such an extent that it will temporarily or permanently cease to exist).
Probability	Improbable	Possibility of occurrence is very low. (Such an impact will have a very slight possibility to materialise, because of design or experience).
	Possible	There is a possibility that the impact will occur
	Probable	It is most likely that the impact will occur

	Definite	The impact will definitely occur
Significance	Insignificant	Impact is negligible and will not have an influence on the decision regarding the proposed activity (No mitigation is necessary)
	Very Low	Impact is very small and should not have any meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Low	The impact may not have a meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Medium	The impact should influence the decision regarding the proposed activity (The project can only be carried through if certain mitigatory steps are taken)
	High	The impact will influence the decision regarding the proposed activity
	Very High	The proposed activity should only be approved under special circumstances
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact
Risk	Low	Assessing a risk involves an analysis of the consequences and likelihood of a hazard being realized. In decision-making, low-consequence / low-probability risks (green) are typically perceived as acceptable and therefore only require monitoring.
	Medium	Other risks (amber) may require structured risk assessment to better understand the features that contribute most to the risk. These features may be candidates for management
	High	High-consequence / high-probability risks (red) are

		perceived as unacceptable and a strategy is required to manage the risk.

Attributes associated with the alternatives were assessed and is outlined below:

Geographical attributes

The Geographical attributes of an area relates to the characteristics of a particular region, area or place. It influences the determination of site alternatives as it relates to the location of a site in relation to relevant features in the area.

Physical attributes

Physical attributes of an area relates to the processes and patterns in the natural environment. For the purpose of this assessment, the following processes and patterns have been investigated. Geology, soil, topography and landforms, climate and meteorology, surface water and ground water.

Biological attributes

Biological attributes for the purpose of this study includes the distribution of species and ecosystems in geographic space and through geological time. Organisms and biological communities often vary in a regular fashion along geographic gradients of latitude, elevation, isolation and habitat area. The two main branches assessed will be:
Phytogeography is the branch of biogeography that studies the distribution of plants.
Zoogeography is the branch that studies distribution of animals.

Social attributes

Social attributes is closely related to social theory in general and sociology in particular, dealing with the relation of social phenomena and its spatial components.

Economic attributes

Economic attributes includes the location, distribution and spatial organization of economic activities and also takes into account social, cultural, and institutional factors in the spatial economy of the development.

Heritage attributes

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural attributes

Cultural attributes relates to the specific characteristics such as language, religion, ethnic and racial identity, and cultural history & traditions of people. These attributes influences family life, education, economic and political structures, and, of course, business practices.

It should be noted that the above mentioned attributes do not occur in isolation and it is not uncommon for an identified impact to overlap with two or more of these attributes. Also note, not all risks require comprehensive and detailed assessment. Solid problem formulation should allow decision-makers to evaluate the extent of subsequent analysis required. The level of effort put into assessing each risk should be proportionate to its significance and priority in relation to other risks, as well as its complexity, by reference to the likely impacts. Consideration should be given to stakeholders' perceptions of the nature of the risk

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.

Alternative 1:	**Alternative 1** is for eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a

dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay as per Layout Plan (Revision 3).

Layout Plan (Revision 3)

Geology, Soil and Topography

- The occurrence of topsoil material deemed to be potentially highly expansive and potentially highly compressible
- The occurrence of residuum material deemed to be potentially slightly compressible.
- The scattered occurrence of boulder size cobbles within the soil profile amplifying the predicted degree of differential movement.
- Localized occurrence of difficult excavation at shallow depth resulting in hard rock excavation of less than 10% of the total volume of material to a depth of 1.5 m below the ground surface.
- Steep slopes of between 6 and 12 degrees across the majority of the site

Hydrology

- Pollution of surface and/or ground water resources.
- Erosion as a result of intense rainfall events and denuded surfaces.
- Siltation.

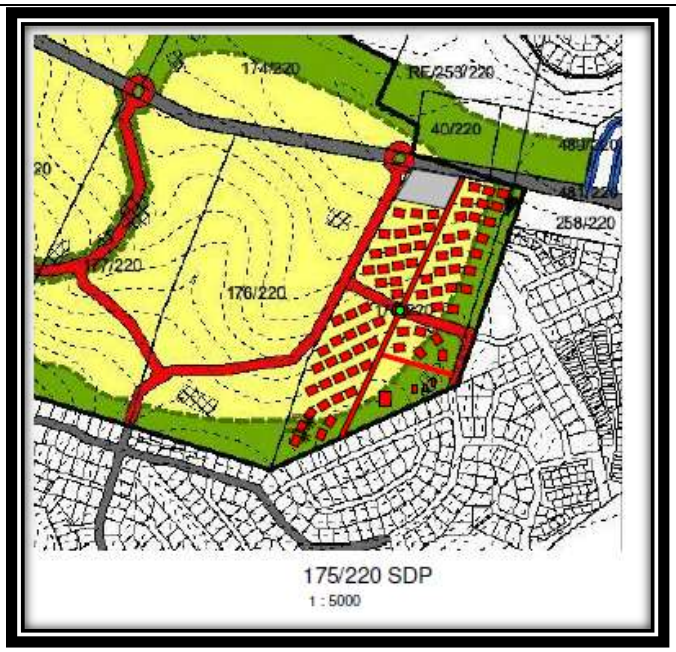
Ecological

- Loss of Vegetation Communities
- Loss of Biodiversity
- Habitat Fragmentation
- Invasion of Invasive Alien Plant Species

Socio-economic

- Provision of increased numbers of sustainable housing in the Mossel Bay area
- Increased need for services in the area
- Creation of job opportunities and entrepreneurship
- Increased tax base for the Mossel Bay Local Municipality

	Heritage and cultural-historical ➢ Stone Age artifacts identified in the area **Noise** ➢ Noise will be generated **Air quality** ➢ Dust will be generated **Visual** ➢ Visual intrusion will occur
Alternative 2:	**<u>Alternative 2</u>** is for eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay as per Layout Plan (Revision 2).  **Layout Plan (Revision 2)** All of the potential impacts that have been described in Alternative 1 will be the same for Alternative 2 and will not be discussed again in this section. Only additional impacts will be. **Socio-economic** ➢ Safe access to the filling station will not be possible
Alternative 3:	**<u>Alternative 3</u>** is for eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay as per Layout Plan (Revision 1).

	 **Layout Plan (Revision 1)** All of the potential impacts that have been described in Alternative 1 will be the same for Alternative 3 and will not be discussed again in this section. Only additional impacts will be discussed. **Ecological** ➢ Disturbed areas will become an open space and sensitive areas will be developed
No-go Alternative:	"The "no-go" alternative … assumes that the activity does not go ahead, implying a continuation of the current situation or the status quo. In a situation where the negative environmental impacts have high significance, the "no-go" alternative takes on particular importance" (DEAT:2004). The no-go option is assessed in this Basic Assessment process as the option of not implementing the proposed activity. This implies that the proposed residential development and filling station would not go ahead. The "no-go" alternative typically receives consideration when a proposed activity poses adverse negative impacts to the environment that cannot be successfully mitigated. The following considerations also enhance its need and desirability: ➢ The Mossel Bay area is experiencing a great influx of people. In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were **defined by developers**, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of **Urban Sprawl on sustainability**. ➢ The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha.

	This proposed development forms part of this area earmarked to combat urban sprawl. If this development is not implemented, the need for affordable housing in the area will not be partially addressed and the practice whereby developers continue to develop areas that are not necessarily sustainable will continue

Alternative 1:	**Geology, Soil and Topography.**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The Geology, Soil and Topography of the site will influence the proposed development
Nature of impact:	➢ The occurrence of topsoil material deemed to be potentially highly expansive and potentially highly compressible ➢ The occurrence of residuum material deemed to be potentially slightly compressible. ➢ The scattered occurrence of boulder size cobbles within the soil profile amplifying the predicted degree of differential movement. ➢ Localized occurrence of difficult excavation at shallow depth resulting in hard rock excavation of less than 10% of the total volume of material to a depth of 1.5 m below the ground surface. ➢ Steep slopes of between 6 and 12 degrees across the majority of the site
Extent and duration of impact:	Local and Long Term
Consequence of impact or risk:	➢ When the soil is saturated and loaded, the soils will undergo an instantaneous loss of strength with the soil grains being forced into a denser state of packing and a reduction in void ratio (decrease in volume). The result of which is varying degrees of consolidation and collapse settlement. ➢ Localized difficulty in excavation of deep service trenches from a depth of 1.00 m below the existing ground level, through the use of a TLB-type light mechanical excavator. ➢ The excavation type to a depth of 1.70 m below the existing ground level is deemed to be Soft Excavation. (SANS 1200D). followed by Intermediate to Hard Rock Excavation conditions as a result of weathered bedrock encountered across the site. Localized Intermediate Excavation from a depth of 1.0 m below existing ground level is expected in the higher lying southern portions of the site. ➢ In the light of the steep slopes across the majority of the site, specialised methods for the stabilisation of cuts into the slopes are deemed necessary.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	High

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ The soils covering the site may undergo a degree of consolidation and heave (i.e.: loss and gain of volume) under loading or when saturated, requiring that structures be adequately strengthened to prevent structural damage due to differential movement beneath foundations. ➢ Due to its variable nature, it is recommended that the highly expansive organic rich topsoil across the site be removed beyond the perimeter of the proposed developments. The decomposition of the organic material within the soil may induce structural damage due to differential movement beneath foundations. ➢ Due to its variable nature, it is recommended that all the heaps of fill material in the north of the site be removed beyond the perimeter of the proposed development. ➢ In areas hosting shallow bedrock; it is recommended that foundations do not span from rock to natural soils or engineered fills, so as to limit differential settlement ➢ It is recommended that all earthworks be carried out in accordance with SABS 1200 (current version). The fill should be placed in layers not exceeding 200 mm loose thickness and compacted to a minimum of 90% Modified AASHTO maximum dry density. ➢ Cut and fill slopes should be top soiled and planted with grass. This will limit erosion of these slopes and the problems associated with wash-away of fill embankments
Residual impacts:	N/A
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	No impact envisaged for this variable during this phase
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is

	not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Hydrology**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the Hydrology of the site and its immediate surroundings.
Nature of impact:	➢ Pollution of surface and/or ground water resources. ➢ Soil erosion as a result of intense rainfall events and denuded surfaces. ➢ Siltation.
Extent and duration of impact:	Local and Short-Term
Consequence of impact or risk:	➢ Spills of lubricants / oils during the construction phase can pollute ground water and surface water in the area. ➢ Poorly planned ablution facilities for construction workers may cause pollution of surface and underground water. ➢ Poorly planned and installed fuel tanks at the filling station may lead to pollution during the operational phase. ➢ Soil erosion may take on bare surfaces as a result of intense rainfall events. ➢ Eroded material can cause siltation of nearby stream and storm water structures.
Probability of occurrence:	Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. ➢ Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. ➢ No vehicles may be serviced on site. ➢ Provide portable ablution facilities that will not cause pollution during the construction phase.

	➢ The installation of fuel tanks must comply with local authority bylaws and all procedures and equipment used must be in accordance with the Occupational Health & Safety Act (No. 85 of 1993), Regulations of South Africa and any other SANS/SABS codes. ➢ Fuel tanks are to be constructed within a bunded underground facility in order to contain any spills. ➢ To prevent soil erosion and possible pollution as a result of storm water runoff during the construction stage, erosion control methods such as silt fences and silt traps, energy breakers in the form of logs secured with stakes, brush-packing and mulching and re-seeding need to be considered. ➢ Stormwater from the site must drain into a sealed oil sump constructed directly downstream of the site in order to intercept possibly contaminated surface run-off from the apron and parking areas. ➢ All surface areas where the handling of fuel will take place (apron area) must be sealed by means of concrete slabs underlain by bitumen at the intersections of the concrete slabs, to prevent the infiltration of liquids into the underlying soil. The soil material underlying this layer must be adequately compacted to prevent ingress of liquids through zones of weakness (i.e.: along joints) within the surface seal.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	
Nature of impact:	➢ Pollution of surface and/or ground water resources. ➢ Soil erosion as a result of intense rainfall events and denuded surfaces. ➢ Siltation.
Extent and duration of impact:	Local and Short-Term
Consequence of impact or risk:	➢ Poorly maintained and serviced infrastructure may cause pollution. ➢ During the operational phase there is the potential that diesel storage tanks and associated pipelines can leak. ➢ Spills can occur due to refilling and the refuelling stations located on the forecourt. This can lead to water pollution.
Probability of occurrence:	Probable

Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Ensure that sewage pipelines are maintained and regularly checked for leaks. ➢ All water flow must be directed through controlled management, away from areas known to contain waste. ➢ The regular reconciliation of the volumes of petroleum products is recommended to ensure the early detection of leaks ➢ Wash water originating from the refuelling area must be directed towards an oil trap ➢ Use of potentially polluting and hazardous substances on site should be strictly controlled ➢ Establish delivery procedures to ensure that hazardous materials are handled with care and stored correctly ➢ Storm water must not be allowed to concentrate, or to cause any erosion ➢ Storm water structures must be maintained.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Ecological**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the Ecology of the site and its immediate surroundings.
Nature of impact:	➢ Loss of Vegetation Communities ➢ Loss of Biodiversity ➢ Habitat Fragmentation ➢ Invasion of Invasive Alien Plant Species
Extent and duration of impact:	Local and permanent
Consequence of impact or risk:	➢ 9 hectares of indigenous vegetation will be eradicated in order to establish the development.

	➢ Clearing for the construction of the project infrastructure could result in the loss of some of the species of conservation concern. ➢ The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats. ➢ Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared for agriculture and development resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. ➢ The site is already infested with invasive alien species and other weedy species. Further disruption of the site could exacerbate the infestation of alien species unless these are controlled for. Areas that are disturbed during the construction phase are vulnerable to infestations unless rehabilitated to prevent invasive alien plant species from establishing themselves.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	➢ Clearly define the construction area before construction activities commence. No clearance of vegetation will be allowed outside of this demarcated area. ➢ Demarcate the open space area as a no-go zone during the construction phase of the development ➢ Two widespread plant species which are not Threatened but which are listed as Declining are found at the site: *Boophone disticha* and *Hypoxis hemerocallidea*. Where individuals of these two species are not within a proposed corridor those individuals should be translocated by qualified

	specialist to the conservation corridor or a suitable site nearby. ➢ Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI, 2017). This means if developments are approved the site should retain ecological functioning. In the case of this site a corridor is proposed if the development is approved. ➢ Of concern is the obvious high frequency of the alien invasive declared weed *Acacia cyclops* (Redeye) at most parts of the site. Eradication of alien invasive *Acacia cyclops* at the site is key also when possible dispersal to more sensitive ecosystems in the larger area is considered. ➢ With the Open Space network that is proposed, most of the sensitive areas will remain intact and will be preserved. ➢ Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. ➢ The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. ➢ No snares may be set ➢ Prohibit all employees from harvesting plants. ➢ Prohibit the making of open fires;
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
OPERATIONAL PHASE	
Potential impact and risk:	
Nature of impact:	➢ Neglect of the open space network.
Extent and duration of impact:	Local and Long-term
Consequence of impact or risk:	➢ Parts of the site, mainly owing to the threatened ecosystem listed above represent an Ecological Support Area. Ecological Support Areas ensure the long-term ecological functioning of the landscape as a whole. From an environmental management perspective these Ecological Support Areas must retain ecological processes, which often requires at least semi-natural ecological conditions (SANBI,

	2017). This means if the open space network is not maintained as planned the site will lose its ecological functioning.
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Medium
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Ensure that the open space network is maintained as planned. This includes the eradication of alien invasive species and ensuring that this area does not become a dumping ground.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Socio-economic**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the Socio-economic status of the area.
Nature of impact:	➢ Provision of "more" sustainable housing in the Mossel Bay area ➢ Increased need for services in the area ➢ Creation of job opportunities and entrepreneurship ➢ Increased tax base for the Mossel Bay Local Municipality ➢ Development proposals are likely to change the environment within which it will be situated, be it natural or man-made, as well as people's perceptions of that changed environment.
Extent and duration of impact:	Regional and Long-term
Consequence of impact or risk:	➢ Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a

	more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha. ➢ The Mossel Bay Municipal Spatial Development Framework included the Aalwyndal area into the Urban Edge and earmarked the area as an intensification area to achieve a denser residential urban environment. ➢ The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community. ➢ Although bulk services are available in close proximity to the site, some infrastructure upgrades will be necessary. ➢ During the construction phase of the development, jobs will be created. ➢ The tax base of the Mossel Bay Local Municipality will be increased. ➢ The visual, scenic and cultural components of the environment are valuable resources and development proposals have the potential to cause significant impacts
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Install bulk services as planned. ➢ Construct the proposed development as planned in order to ensure that all of the advantages as described above can be achieved. ➢ The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the

	earliest stages to work with the Engineers developing this plan. ➢ Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site ➢ Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls ➢ Retaining as much of the existing, indigenous natural landscape as possible to be encouraged. ➢ External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation ➢ No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing" ➢ A solid boundary walls may only be used between the existing residential built on the most southern boundary. ➢ Urban Heat Island: The absorbance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged ➢ Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
OPERATIONAL PHASE	
Potential impact and risk:	The development will have an impact on the Socio-economic status of the area
Nature of impact:	➢ Availability of "more" sustainable housing in the Mossel Bay area ➢ Provision of job opportunities and entrepreneurship ➢ Increased tax base for the Mossel Bay Local Municipality
Extent and duration of impact:	Regional and Long-term
Consequence of impact or risk:	➢ The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job

	creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community. ➢ During the operational phase of the development, jobs will be created. ➢ The tax base of the Mossel Bay Local Municipality will be increased.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Operate the filling station according to best practice standards. ➢ No occupation of the site will be allowed if bulk services have not been provided. ➢ No further mitigation required.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Heritage and cultural-historical**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the Stone Age artefacts that are found on site
Nature of impact:	➢ Stone Age artifacts identified in the area
Extent and duration of impact:	Local and Regional
Consequence of impact or risk:	➢ In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant

	from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ That a detailed Phase 2 archaeological assessment be conducted on the study area ➢ This work needs to be undertaken by a qualified Stone Age archaeologist and needs to be done in conjunction and in sympathy with the ongoing Mossel Bay Archaeological Project (MAP) mentioned earlier ➢ The work will included detailed mapping of the area and the Stone Age material located here, as well as the systematic collection of representative Stone Age material from the development area ➢ It is also recommended that once development commences in the area that an Archaeological Watching Brief be implemented to ensure that if any possible stratified archaeological remains are exposed that these could be studied by specialists of the MAP.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	No impact envisaged for this variable during this phase
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is

	not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Noise**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the noise levels of the area
Nature of impact:	➢ Noise will be generated
Extent and duration of impact:	Local and short-term
Consequence of impact or risk:	➢ A certain amount of noise will be generated during the construction phase of the project. Noise levels should however rarely exceed the allowable limits.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Limit construction activities to normal working hours ➢ Coincide any excessively noisy activities to minimise duration of inconvenience ➢ Ensure noise standards are complied with and that construction staff are provided with personal protective equipment when undertaking noisy operations
Residual impacts:	
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	The proposed development will have an impact on the noise levels of the area
Nature of impact:	Noise will be generated
Extent and duration of impact:	Local Long-term
Consequence of impact or risk:	➢ Noise level increase as a result of the increased traffic volumes, no other nuisance factor impacts are anticipated.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low

Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	➢ No mitigation possible as a certain amount of noise will be generated as a result of normal traffic during the operational phase of the development.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Air quality**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the Air quality of the area
Nature of impact:	➢ Dust will be generated
Extent and duration of impact:	Local and short term
Consequence of impact or risk:	Construction activities will result in the generation of dust
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium-high
Degree to which the impact can be managed:	Medium-high
Degree to which the impact can be mitigated:	Medium-high

Proposed mitigation:	➢ Ensure regular wetting of sand surfaces to minimise dust generation during construction ➢ Limit height of stockpiles to 2m and cover with appropriate material to reduce dust generation ➢ Avoid dust generating activities during periods of strong wind ➢ Minimise the exposed surface area during construction activities.
Residual impacts:	
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	No mentionable impacts as a result of the proposed development are foreseen for this variable during the operational phase
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 1:	**Visual**
PLANNING, DESIGN, DEVELOPMENT AND OPERATIONAL PHASE	
Potential impact and risk:	The proposed development will have an impact on the sense of place of the area
Nature of impact:	Visual impact will occur
Extent and duration of impact:	Local and long-term
Consequence of impact or risk:	➢ An area that is currently mostly undeveloped will be transformed to be developed
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	➢ The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	➢ Plan the design of the building in such a manner as to blend in with the aesthetics of the area.

	➢ Make use of earthy textures and colours for the outside of the buildings. ➢ Gardening will be minimized. The use of indigenous vegetation for landscaping will be mandatory. ➢ Ensure that signage from the filling station does not cause to much light pollution at night time. ➢ The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the earliest stages to work with the Engineers developing this plan. ➢ Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site ➢ Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls ➢ Retaining as much of the existing, indigenous natural landscape as possible to be encouraged. ➢ External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation ➢ No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing" ➢ A solid boundary walls may only be used between the existing residential built on the most southern boundary. ➢ Urban Heat Island: The absorptance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged ➢ Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation	Medium

(e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 2:	**Socio-economic**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Nature of impact:	Safe access to the filling station will not be possible
Extent and duration of impact:	Local and Long-term
Consequence of impact or risk:	➢ Based on the Aalwyndal Precinct Plan (WM de Kock Associates, March 2018), the Aalwyndal Street cross section will most likely include a median which means that only a left-in will be possible from Aalwyndal Street, with a left out into Future Street. ➢ The proposed SDP indicated an ingress and egress access point on Future Street 1, but due to its proximity to the new traffic circle at this intersection, this ingress point will not be acceptable
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-high
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ Move the filling station to the Eastern Corner of the Aalwyndal Street Boundary and allow for a left in left out scenario as per Alternative 1.
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
OPERATIONAL PHASE	
Potential impact and risk:	No mentionable impacts as a result of the proposed development are foreseen for this variable during the

	operational phase as it is proposed that Alternative 1 be the preferred Alternative.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

Alternative 3:	**Ecological**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The proposed development will have an impact on the ecological status of the site and the area
Nature of impact:	Disturbed areas will become an open space and sensitive areas will be developed.
Extent and duration of impact:	Regional and Long-term
Consequence of impact or risk:	➢ In the Municipalities Precinct Plan for the area, open spaces were identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area. ➢ If the open space network as initially proposed by the Precinct plan is implemented, the sensitive area in the middle of the development will be disturbed and the open space network will not serve its optimal purpose.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very-high
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	➢ The Ecological Fauna and Flora Habitat specialist has recommended that the open space be moved and that it will make more sense (From a sensitivity

	point of view) to have the open space in the middle of the development
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
OPERATIONAL PHASE	
Potential impact and risk:	No mentionable impacts as a result of the proposed development are foreseen for this variable during the operational phase as it is proposed that Alternative 1 be the preferred Alternative.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not assessed as the proposed development is for a residential development and a filling station and it is not envisaged that either of these two activities will be decommissioned within the next 50 years.

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.

GEOTECHNICAL STUDY

Terra Geotechnical was appointed to conduct a geotechnical investigation with the aim to assess aspects such as geology, relief and subsoil conditions which may influence the planned development in the area.

The investigation found the following conditions on site.

- the occurrence of topsoil material deemed to be potentially highly expansive and potentially highly compressible
- The occurrence of residuum material deemed to be potentially slightly compressible.
- The scattered occurrence of boulder size cobbles within the soil profile amplifying the predicted degree of differential movement.
- Localized occurrence of difficult excavation at shallow depth resulting in hard rock excavation of less than 10% of the total volume of material to a depth of 1.5 m below the ground surface.
- Steep slopes of between 6 and 12 degrees across the majority of the site

In the light of the results of this investigation, the site was deemed suitable for development, provided due cognisance is given to the following:

- The soils covering the site may undergo a degree of **consolidation and heave** (i.e.: loss and gain of volume) under loading or when saturated, requiring that structures be adequately strengthened to prevent structural damage due to **differential movement** beneath foundations.
- Due to its variable nature, it is recommended that the **highly expansive organic rich topsoil** across the site be removed beyond the perimeter of the proposed developments. The decomposition of the organic material within the soil may induce structural damage due to differential movement beneath foundations.
- Due to its variable nature, it is recommended that all the **heaps of fill** material in the north of the site be removed beyond the perimeter of the proposed development.

- Due to the identified drainage feature traversing the north western portion of the site, it is recommended that detailed **1:100 flood line survey** be conducted to identify the extent of this feature
- In areas hosting shallow bedrock; it is recommended that foundations do not span from rock to natural soils or engineered fills, so as to limit differential settlement

The report also made mention of "*The occurrence of a **non-perennial river** traversing the north western corner of the site; with expected elevated volumes of surface water runoff and associated erosion within, and adjacent to this channel. The exact extent of this channel and its 1:100 flood line needs to be determined*"

This raised red flags, as the sensitivity map for the area did not indicate any aquatic feature on site and if this was true, the Layout Plan would have to be redesigned to incorporate this aspect.

A Civil Engineer was then appointed to determine the 1:100 year flood lines that may affect the development. This investigation revealed that "Aalwyndal (The site) is predominantly well above all possible sources of flooding".

In addition to the above, a Wetland Specialist was also appointed to ensure that no Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, un-channelled valley-bottom wetlands, wetland depressions (pans), seeps and wetland are present on site. This study also revealed that none of these features are present on site.

These studies were then presented to Terra Geotechnical and they responded as follows:

"The major change that these findings bring to the geotechnical report is the shifting of the indicated non-perennial drainage feature. Through the evidence provided it can now be assumed that this drainage does not intersect or have any influence on the investigated area. The minor depression in the north western corner will lead to ponding of surface water during high rainfall. Surface drainage measures needs to be implemented as described in the original report."

Information of this study was used to confirm that the geotechnical character of the site is suitable for the proposed development if cognisance is taken of the mitigation measures as described.

FLOOD LINE REPORT

Fraser Consulting Engineers was appointed to determine the impact of flood lines on the proposed development. The study revealed that the site is predominantly well above all possible sources of flooding.

The Specialist proposed the following mitigation measures:

- The stormwater design and road geometrics design will eliminate any possible stormwater issue in this area;

Information of study was used to confirm that the Layout Plan will not have to be amended.

WETLAND STUDY

Mr. Reinier F. Terblanche was appointed to ensure that no Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, un-channelled valley-bottom wetlands, wetland depressions (pans), seeps and wetland are present on site.

The study revealed that Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, un-channelled valley-bottom wetlands, wetland depressions (pans), seeps and wetland flats appear to be absent at the site. A small depression, which is technically similar to a very small artificial waterbody (not a wetland depression/ pan) of approximately 0.03 ha, possibly excavated in the past and also cut off by tar road elevation, is present at the northwestern corner of the site. This small low-lying area appears to be hitherto excavated, though shallow. The northern edge of the small area where water may gather during substantial rainfall events is a slightly elevated tar road which in

effect cuts of water flow under normal conditions. In the case when excessive water runs down from a shallow valley west of the site and from the surface of tar road and road verge north of the site, water could potentially gather at the shallow depression. Under what would likely be extraordinary circumstances this depression would overflow over the tar road in a northern direction to feed into the non-perennial river north of the site. Technically the depression could be described as a very small artificial waterbody which could be inundated sporadically. Historically this area where the depression occurs was part of a drainage line that ran through the extreme northwestern part of the site. This drainage line which starts at the head of the small shallow valley west of the site, has been conspicuously modified in the past by a ground wall (dam), buildings, fences, cleared areas and a tar road, the latter seemingly without culverts in the immediate area.

The following recommendations were made:

- Given the modified context of the entire drainage system in the area it is recommended that a proper stormwater system should be planned for if the development is approved, free drainage could be enhanced and water of good quality could release into the non-perennial river north of the site.
- For river FEPAs the whole sub-quaternary catchment is usually shown in a wetland atlas, although FEPA status applies to the actual river reach within such a sub-quaternary catchment. The shading of the whole sub-quaternary catchment indicates that the surrounding land and smaller stream network need to be managed in a way that maintains the good condition (A or B ecological category) of the river reach. It is important to note that river FEPAs currently in an A or B ecological category may still require some rehabilitation effort, e.g. clearing of invasive alien plants and/or rehabilitation of river banks. From a biodiversity point of view, rehabilitation programs should therefore focus on securing the ecological structure and functioning of FEPAs before embarking on rehabilitation.

Information of study was used to confirm that the Layout Plan will not have to be amended

FAUNA AND FLORA HABITAT SURVEY

Mr. Reinier F. Terblanche was appointed to evaluate the conservation importance and significance of the site with special emphasis on the current status of threatened species. He was also tasked to assess the viability of the Open Space Network proposed and to propose alternatives, should it prove to be necessary.

The study revealed that vegetation at most of the site consists of sclerophyllous shrub (ofthen with thorns/spikes) mixed with a conspicuous infestation of the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas of the site have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.

The outcome of the Ecological assessment noted that the Open Space corridor recommended by the Precinct Plan should be moved to the more sensitive middle of the site. Other mitigation measures included the eradication of alien invasive *Acacia cyclops* and the cultivation of indigenous plant species.

The delineation of the sensitive areas of the site was used to design the proposed Open Space Network for the development.

HERITAGE SPECIALIST

A Pelser Archaeological Consulting (APAC) was appointed undertake a Phase 1 HIA for proposed development.

The assessment found a fairly large number of Stone Age artifacts (flakes, cores, tools) throughout the area. These were either as single objects or in denser scatters of objects in these locations. It is

envisaged that many more of these locations are situated throughout the study area, but that due to the dense vegetation they are not visible as a result.

In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area. The following is therefore recommended:

1. That a detailed Phase 2 archaeological assessment be conducted on the study area

2. This work needs to be undertaken by a qualified Stone Age archaeologist and needs to be done in conjunction and in sympathy with the ongoing Mossel Bay Archaeological Project (MAP) mentioned earlier

3. The work will included detailed mapping of the area and the Stone Age material located here, as well as the systematic collection of representative Stone Age material from the development area

4. It is also recommended that once development commences in the area that an Archaeological Watching Brief be implemented to ensure that if any possible stratified archaeological remains are exposed that these could be studied by specialists of the MAP.

Based on the assessment it is recommended that the development be allowed to continue, once the recommended mitigation measures have been implemented.

TRAFFIC IMPACT ASSESSMENT

Urban Engineering (Pty) Ltd was appointed to conduct a Traffic Impact Assessment to determine how the traffic generated by the proposed development, will influence the road network within the immediate vicinity of the site.
The report concluded that the proposed rezoning and subdivision of erf 2839 can be allowed to continue, if recommendation as designed are implemented.

These included:

Intersection of Future Street 1 and Future Street 2 and Aalwyndal Circle.
The intersection of Future Street 1 and Future Street 2 should be in the form of a Stop Controlled intersection, with priority movement along the Future Street 1 approaches to the intersection. Lane and Road Reserve width should comply to the specification of the Aalwyndal Precinct Plan. The Main Circle on Aalwyndal Street should comply to the parameters specified in the Aalwyndal Precinct Plan.

Position of access into the developments.
The proposed accesses leading into Portion A and B should be moved at least 100m away from the intersection of Future Street 1 and Future Street 2.

Throat Lengths
The access into both Portion A and B Developments should make provision for dual entrance channels in front of the guard house. Each channel should be at least 20m long and should taper back to a single lane at the junction with Future Street 2. (in order to limit the driveway width).

Turning Lanes
The intersection at the entrance to portion A and B should make provision for a 30m long, dedicated right turn lane.

The Proposed Filling Station

The position of the proposed filing station is not acceptable. It is recommended that the filling station move towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration.

Information from this report was used to amend the Layout Plan in order to accommodate the preferred position of the filling station.

CIVIL ENGINEERING REPORT

V3 Consulting Engineers (Pty) Ltd. have been appointed to prepare a report regarding the civil services for the proposed development.

All the civil services and pertaining infrastructure have been designed in accordance with the "Guidelines for Human Settlements, Planning and Design" as compiled under patronage of the Department of Housing by CSIR Building & Construction Technology (also known as the "Red Book"). The relevant code of standards (i.e. SABS 1200, etc.) will be applicable to material and construction standards.

Bulk Water Supply for Domestic Usage

Potable water for human consumption and domestic use will be required and will be provided by Mossel Bay Municipality from their water treatment works in Klein Brakriver.

Bulk water to the proposed development will be supplied from the existing Aalwyndal reservoir. An additional 7,0 ℓ/s pumping supply capacity will be required from the existing Langeberg to Aalwyndal reservoirs. There is however sufficient pumping capacity at the Aalwyndal pumping station and rising main to meet the increased required capacity.

Two reinforcing gravity supply pipelines, 2370 m x 250 mm ø and 680 m x 160 mm ø, between the Aalwyndal reservoir and the proposed development will be required to accommodate the development. The pipelines will supply water to the proposed development as well as the adjacent future development area. A proposed PRV will be required to reduce potential high static pressures in the lower laying areas of the zone. PRV pressure setting to be confirmed during final design.

The Mossel Bay Municipality confirmed that enough water is available to supply in this demand.

Bulk Sewage Removal

All the sewage from the proposed development will gravitate to a proposed new pumping station and rising main. From this pumping station the sewage from the proposed Development will be pumped to the existing Voorbaai pumping station.

From the Voorbaai pumpstation the sewage will be pumped through the existing sewage rising main to the connection point at the existing Municipal outfall sewer. From the connection point the sewage will gravitate through the existing 2 x 450 mm HDPE (Class 12) siphons from Hartenbos to the Inletworks at the Hartenbos Regional Sewage Treatment Works.

The Mossel Bay Municipality confirmed that the necessary capacity is available at their Hartenbos Regional Treatment Works to handle the additional sewage inflow from this development.

Stormwater drainage

As is standard practice, a stormwater management plan will be handed in to the controlling bodies for approval. For this development, the 1:50 year and 1:100 flood lines **are not applicable**.

The stormwater plan will be based on the following:
Up to 1:5 year flood to be handled in channels and/or underground pipes. Stormwater runoff from the roads will be channelled along concrete channels and/or road kerbs to catch pits from where it will be piped to low points. Bigger floods to run on surface as is the standard.

The stormwater network will consist of 450 mm concrete pipes. Pipe trench widths required by SANS 1200 is 900 mm. Trench depths will be determined by the topography but will be between 1,0 to 3,0 m deep.

Bulk service infrastructure does not form part of this application.

VISUAL IMPACT ASSESSMENT

Development proposals are likely to change the environment within which it will be situated, be it natural or man-made, as well as people's perceptions of that changed environment. The visual, scenic and cultural components of the environment are valuable resources and development proposals have the potential to cause significant impacts.

Visual Impact Assessment aims to accurately determine, with information available at the time, to illustrate the expected visual impact associated with the proposed development; and to formulate measures to mitigate any detrimental impacts of the proposal to the extent that the development will be meet acceptable visual criteria. As all development proposals have the potential to change the visual character of the environment within which they are located, and to affect people's perception of such places, significant visual impacts may be expected. Therefore, Visual Impact Assessment can serve as a proactive tool to inform planning and design processes.

Thus this VIA will consider :
- The areas surrounding the older existing urban edge which is not well developed
- The impact of the proposed development on the side-slope of the hill
- The impact of the lighting on the landscape at night
- Architectural Guidelines

GENERAL MITIGATION MEASURES
Mitigation measures will assist in mitigating the visual impact, namely:

- The physical reforming of the landscape for development, such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the earliest stages to work with the Engineers developing this plan.
- Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site
- Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls
- Retaining as much of the existing, indigenous natural landscape as possible to be encouraged.
- External lighting restrictions and guidelines by lighting engineer/ expert. Refer to Lighting mitigation
- No solid boundary walls but the use of a translucent boundary e.g. 'Clearview Fencing"
- A solid boundary walls may only be used between the existing residential built on the most southern boundary.
- Urban Heat Island: The absorbance value of flat hard surfaces of roads and parking areas should be considered. The use of materials with a solar reflectance value of less than 0.6 is encouraged
- Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas

Conclusion
Any new buildings and/or developments will have an impact on its environment in many ways, but especially on the existing visual and scenic environment. These mitigating measures aims to find a balance to integrate the new development in its environment and further enhance the existing landscape to an acceptable visual level

These mitigation measures will need to be implemented and monitored throughout the planning, design development, construction, maintenance and operation of development if the mitigation of the visual impact of this development is to be significantly and successfully achieved.

IMPACT ON CIVIL AVIATION INSTALLATIONS

The Aalwyndal Mosselbay Development has been rated as a "High" sensitivity site for the civil aviation theme. This is mainly due to its close proximity to the Mossel Bay Aerodrome (FAMO) at location Ref. Point: S340925 E0220341. In accordance with the Government Gazette No. 43110 a specialist assessment was performed in order to ensure the level of impact on civil aviation installations. After an assessment performed by a radio frequency and radar specialist the site was rated as a "Low" sensitivity site for the civil aviation theme. Therefore according to the Government Gazette No. 43110 no further assessment requirements are identified.

Initial Screening tool result: "High" Sensitivity site related to the impact on civil aviation installations.
Assessed result: "Low" Sensitivity site related to the impact on civil aviation installations.

After the assessment the Aalwyndal Mosselbay Development has been rated as a "Low" sensitivity site for the civil aviation theme because of the following main reasons.
1. The development site is located beyond line of sight of the Mossel Bay Aerodrome (FAMO). The Mossel Bay Aerodrome (FAMO) is located on a plateau that is more than 70meter higher than the highest point on the development site. Therefore the site cannot cause any visual interference as well as any radio signal reflections.

2. The site also will cause zero radar interference. Radar is a detection system that uses radio waves to determine the range, angle, or velocity of objects. A radar system consists of a transmitter producing electromagnetic radio waves. These electromagnetic radio waves reflect off the object and return to the receiver, giving information about the object's location and speed. Because the Aalwyndal Mosselbay Development is beyond line of sight the radar will never get any reflections back from this site and can thus not cause any interference.

3. The site will also not interfere with any ground to air communication, any airport radio direction finding equipment as well as any radio transmitting beacons.

ECONOMIC IMPACT ASSESSMENT

- The following recommendations are made for the successful development of the Aalwyndal filling station:
- The site is not visible from the N2 national roadway. It is recommended that the developer take appropriate steps to install adequate signage to ensure that travellers along the N2 are made aware of the filling station and its associated services.
- To maximise the impact on the local economy, local contractors and suppliers of construction materials is encouraged.
- No filling station in the Mossel Bay region (including the two large inter-city filling stations to the West of Mossel Bay) provide charging bays for electric vehicles. As this is expected to be a fast-growing vehicle segment in the coming decades it is recommended that the developer consider making investments in this regard to ensure that the development caters to this growing market.
- No filling station in Mossel Bay includes facilities for cyclists and non-motorised transport. While these vehicles do not require liquid fuel, they do make use of services such as air-pumps, and the adjoining services provided by many filling stations. National transport policy as well as strategic planning of the Mossel Bay Local Municipality identify non-motorised transport as a key growth area to achieve climate goals. The installation of adequate bike parking solutions is thus recommended to cater for this underserved market.

- It is recommended that the developer provide due consideration to the landscaping, greenery, and beautification of the site surrounding the filling station infrastructure to maximise the appeal of the site to local and passing motorists.
- To ensure the success of the filling station development, it is recommended that the filling station provide at a minimum the following services: o 4 – 5 pump stations providing both petrol and diesel.

    o ATM facilities.
    o Public access restrooms.
    o A convenience store.
    o A fast-food takeaway.

DEA&DP has specifically requested that the following issues be addressed in this report. Please see response below.

Item	Response
The impact of the new filling station on existing competing sites	The report finds that the impacts on competing sites is likely to be moderate immediately following the inception of the filling station but reduce considerably in the months following the opening of the filling station. The total duration of any adverse impacts is likely to last no longer than 12 months.
Shared traffic streams and the impact on existing competition	A traffic capture rate is used to determine the market capture rate of the filling station. The proposed development will draw from both the residential traffic of Mossel Bay as well as the transient traffic traveling on the N2. As the filling station will draw from both streams, this should moderate the impact on both the nearby filling stations catering for the local market as well as the two major inter-city filling stations to the West of Mossel Bay.
Interception rates	Interception rates are assumed at 2.2% based on research conducted by Coetzee, van Rensburg, and Schreurs (2001, and 2008).
Average fuel sales in local market area	Average fuel sales for the Mossel Bay region are presented and discussed in the report.
Traffic growth	Traffic growth is captured by the models as a function of population growth, economic activity, and vehicle ownership rates.
Expected fuel sales	Expected fuel sales have been computed for the proposed filling station. The report finds that the average monthly sales of the Aalwyndal filling station should total ± 401 869 litres per month.
Impact on other truck stops to the west of Mossel Bay	The impact on these two filling station developments is expected to be low, and short-lived due to their optimal positioning, established presence, and future traffic growth along the N2.

Impact on the sense of place, residential, and tourist accommodation	The report finds that the filling station will have no permanent adverse impacts ono the local property market or community, but rather make a net positive contribution through the provision of services to the growing Aalwyndal community.
Cost of preparation, construction, and rehabilitation.	The costs of construction of the filling station development are supplied by the client at an estimated cost of R 14 million inclusive of site preparation, construction, and rehabilitation.

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

All of the proposed mitigation measures as described above will be included into the EMPr

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.

None of the mitigation measures that were proposed by the Specialist will not be included into the EMPr.

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

Any new buildings and/or developments will have an impact on its environment in many ways, but especially on the existing visual and scenic environment.

Urban Sprawl: The proposed development will assist the Municipality to curb urban sprawl, as the site is already located within the urban edge.
Housing: Enhancement of the social well-being of the local communities for which the development is intended. (More housing will be available in the area.)
Solid waste: The proposed development will add additional solid waste into the existing waste stream of the Local Municipality.
Sewage: The proposed development will add additional sewage into the existing sewage stream.
Water supply: The proposed development will add pressure to the water supply of Local Municipality's Water.
Traffic: The proposed development will result in an increase in traffic in the immediate surroundings of the proposed development.
Storm water: The proposed development may increase the intensity of storm water released from the site. (If measures are not put in place.)
Biodiversity: Indigenous vegetation will be removed and habitats will be destroyed.
Open Space: If properly implemented, the open space system will ensure connectivity and eradication of alien invasive species.

Though threatened plant or animal species are unlikely to be present at the site, for considerations of the succulent plant diversity, ecological support areas and possible shifts in suitable habitat caused by climate change a continuous conservation corridor is imperative at the site if the development is approved. Such a continuous conservation corridor should only at appropriate restricted areas be interrupted by any roads. Such a conservation corridor if accompanied by the eradication of alien invasive *Acacia cyclops* could be beneficial to the quality of life if the development is approved, apart from conserving indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanised area.

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.

According to: WIREs Climate Change 2014, 5605-620. Doi:10.1002/wcc.295: "Climate change is a key concern within South Africa. Mean annual temperatures have increased by at least 1.5 times the observed global average of 0.65◦C over the past five decades and extreme rainfall events have increased in frequency. These changes are likely to continue. Climate change poses a significant threat to South Africa's water resources, food security, health, infrastructure, as well as its ecosystem services and biodiversity. Considering South Africa's high levels of poverty and inequality, these impacts pose critical challenges for national development. In relation to water, impact studies for the water resources sector have begun to look beyond changes in streamflow to changes in the

timing of flows and the partitioning of streamflow into base flows and stormflows, reservoir yields, and extreme hydrological events. Spatially the eastern seaboard and central interior of the country are likely to experience increases in water runoff. Higher frequencies of flooding and drought events are projected for the future. Complexities of the hydrological cycle, influences of land use and management and the linkages to society, health, and the economy indicate far higher levels of complexity in the water resources sector than in other sectors. What has emerged is that land uses that currently have significant impacts on catchment water resources will place proportionally greater demands on the catchment's water resources if the climate were to become drier. The influence of climate change on water quality is an emerging research field in South Africa, with assessments limited to water temperature and non-point source nitrogen and phosphorus movement. A critical interaction that has not been explored is between changes in water quality and quantity and the combined impacts, such changes might have impact on various types of water use, e.g., irrigation, domestic consumption, or aquatic ecosystems support".

Water availability and demand has been calculated by the consulting Civil Engineers, to enable a sustainable waterborne sewage system as well as potable water supply for both the existing and future developments in the area.

In addition to the above it is proposed that provision be made for rainwater harvesting and be linked to landscape irrigation systems or other water consumption areas.

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

The Geotechnical Engineer has stated that a non-perennial stream intersects the site. A Civil Engineer and a Wetland Specialist was then appointed to assess this statement and they have both disputed this statement. After reviewing their reports, the Geotechnical Engineer wrote an Addendum to his original report stating that he concurs with the reports provided to him and has subsequently amended his Development Potential Zonation Map.

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 various findings and recommendations have led to the development of the proposed project layout and the recommended mitigation measures have been incorporated into the EMPr

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

The mitigation hierarchy has been considered in the development of the proposed project layout. Refer to Section H for a discussion on the project layout alternatives that were considered and how the various layout versions were arrived at, after further consideration of specialist's assessments

SECTION J: GENERAL

1. Environmental Impact Statement

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

The land owner, **Hennie Bekker Familie Trust** has appointed AB Enviro Consult CC, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

The site which is located on the northern slope of a localized hill, spans from the gentle sloping summit through the steeply sloping side slope to the gentle sloping foot slope of the hill. Overall, the site is seen to display a variable sloping nature, with the slope generally following a radial sloping nature around the hill summit. The major slope is however in a northerly direction, from the higher lying hill summit in the south (approximately 85 mamsl) towards the lower lying area in the north (approximately 30 mamsl.

The site is roughly rectangular shaped and zoned "Residential 1". One Residential house has been constructed on site. The remainder of the site is mostly undeveloped. An overhead power line traverses the north eastern corner of the site. The northern and north western boundary of the site

displays evidence of vegetation clearance for a firebreak. Scattered heaps of dumped material, which over time have been covered with vegetation is also scattered across the site. Tracks, fences and alien invasive plant species are found at the site.

The study area is located on the outskirts of the town of Mossel bay, within the Mossel Bay Local Municipality forming part of the Eden District Mossel Bay within the south eastern portion of the Western cape Province of South Africa. The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan.

The Mossel Bay area is experiencing a great influx of people. In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were defined by developers, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of Urban Sprawl on sustainability.

The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha

In the Municipalities Precinct Plan for the area, open spaces was identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area.

The Mossel Bay Municipality commissioned a Biodiversity Assessment for the area. The Biodiversity Assessment was done by combining a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment. In terms of this assessment the proposed development falls within an area that has been identified as being "Very High Sensitivity" and has led to the inclusion of this area (The Application site) into the Open Space Network proposed for the Precinct Plan.

The Ecological Fauna and Flora Habitat study that was prepared for the site revealed that the ecological sensitivity at most of the site is medium despite the fact that it forms part of the Groot Brak Dune Strandveld (FS 9) which is Endangered. Considerably degraded areas at the northeastern parts of the site are regarded as a low sensitivity area. Vegetation at most of the site consists of sclerophyllous shrub mixed with a conspicuous infestation of the alien invasive *Acacia cyclops* (Redeye). About 40% recognisable as this vegetation type at the site which is then approximately 5,2 ha in extent (the entire site is 12,5746 ha). For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.

The outcome of the Ecological assessment noted that the Open Space corridor recommended by the Precinct Plan should be moved to the more sensitive middle of the site.

Although bulk services are available in close proximity to the site, some infrastructure upgrades will be necessary. These upgrades do not form part of this application.

The Traffic Impact Assessment conducted for the proposed development concluded that the filling station will have to be moved towards the Eastern Site Boundary and that access into and out of the filling station be in the form of a Left-In, Left-Out configuration.

In light of the relatively high number of Stone Age artifacts identified in the area, and in relation to the significant Archaeological sites (such as Cape St. Blaize & Pinnacle Point) located in and around Mossel Bay, the finds made during the November 2018 assessment should be viewed as significant

from an Archaeological perspective. Although the site/s and material is situated in an open-air surface context, and not in a stratified cave or shelter context, the material located in the study area could provide valuable information related to the Stone Age archaeology of the area.

The visual Impact Assessment that was done concluded the following:
The physical reforming of the landscape for development , such terracing and cut- to fill for roads and buildings, must be designed in such a way to minimise the visual impact, to this end a Landscape Architect must be employed at the earliest stages to work with the Engineers developing this plan.

Extensive landscaping along internal and external streets and between buildings with an emphasis on the treatment of the sidewalks to help with the Visual Absorption Capacity by careful and selective use of indigenous landscaping to softening the visual impact of the new development. Establish extensive landscaping including large indigenous trees that will screen the development and will increase the Visual Absorption Capacity and partly help conceal the development on the exposed areas on the site.

Mitigation should be implemented during the operational phase: landscape, cut/fill, slopes, terraces, retaining walls and use natural finishes and/or colours on retaining walls. Retaining as much of the existing, indigenous natural landscape as possible to be encouraged. Provision must be made for rainwater harvesting and should be linked to landscape irrigation systems or other water consumption areas.

The detailed environmental assessment for the proposed development, has not found any environmental impacts that *cannot* be mitigated to acceptable and manageable levels. A full Public Participation Process will be conducted and all objections or comments will be included into the Draft BAR.

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)
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.

The following Negative impacts can be expected:

- 9 hectares of indigenous vegetation will be eradicated in order to establish the development.
- Clearing for the construction of the project infrastructure could result in the loss of some of the species of conservation concern.
- The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats.
- Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared for agriculture and development resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.
- Further disruption of the site could exacerbate the infestation of alien species unless these are controlled for. Areas that are disturbed during the construction phase are vulnerable to infestations unless rehabilitated to prevent invasive alien plant species from establishing themselves.
- An area that is currently mostly undeveloped will be transformed to be developed.
- The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.

The following Positive impacts can be expected

- The site is already infested with invasive alien species and other weedy species. The implementation of an open space network for the site and the Precinct Plan is proposed. Such a conservation corridor if accompanied by the eradication of alien invasive *species* could be beneficial to the conservation of indigenous plants and associated smaller animals (such as sunbirds) in an increasingly urbanized area.

- Urban Sprawl will be combatted.
- As this is one of the first development applications for the area, a president will be set for future development in the area.
- As soon as more developers start to develop in the area, services will become available.
- The Aalwyndal area was specifically identified because it is located next to the N2 Highway for accessibility; next to Voorbaai, one of the core job creation areas; close to existing municipal infrastructure and is next to Langeberg Mall which will serve the new community.
- During the construction and operational phase of the development, jobs will be created.
- The tax base of the Mossel Bay Local Municipality will be increased.

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

Impact management and mitigation are all covered in the EMPr along with monitoring of the site in order to adhere to mitigation measure. One of these monitoring methods is having an Environmental Control Officer on site during the construction phase of the project. Monthly site visits will be conducted, and reports submitted to the Department of Environmental Affairs and Development Planning on a monthly basis.

The following Environmental Impact Management Outcomes has been identified for the **"Non-Operational" (pre-construction and construction phase) phase** of the proposed development

1. A full copy of the signed EA in terms of NEMA, granting approval for the development must be available on site
2. A copy of the EMPr as well as any amendments thereof must be available on site
3. A suitably qualified ECO must be appointed.
4. Impacts on the environment must be minimised during site establishment and the development footprint must be kept to the approved development area.
5. Vegetation clearing may not commence until such time as the development footprint has been clearly defined and the no-go zone demarcated.
6. No clearance of vegetation outside of the development footprint may occur.
7. At the end of the construction phase the site and its surrounding area must be free from any pollution that originated as a result of the construction activities.
8. No disturbance of topsoil & subsoil may commence until such time as the development footprint has been clearly defined.
9. No disturbance of topsoil & subsoil outside of the development footprint may occur.
10. At the end of the construction phase the site and its surrounding area must be free from any chemical, fuel, oil and cement spills that originated as a result of the construction activities.
11. At the end of the construction phase the site and its surrounding area must be free from any sewage that originated as a result of the construction activities.
12. At the end of the construction phase the site and its surrounding area must be free from any hazardous or general waste pollution that originated as a result of the construction activities.
13. Dust prevention measures must be applied to minimise the generation of dust.
14. Noise prevention measures must be applied to minimise the generation of unnecessary noise pollution as a result of construction activities on site.
15. Absolutely no burning of waste is permitted.
16. Fires will only be allowed in facilities especially constructed for this purpose.
17. No hunting of animals will be allowed.
18. No intentional destruction of any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance may occur.
19. All Contractors and sub-contractors must abide to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993

The following Environmental Impact Management Outcomes has been identified for the **"Operational" phase of the proposed development:**

1. A full copy of the signed EA in terms of NEMA, granting approval for the development must be available on site
2. A copy of the EMPr as well as any amendments thereof must be available on site
3. Records of Environmental Monitoring must be available on site.
4. The site and its surrounding area must be kept free from any pollution that originated as a result of the operational activities.
5. The site and its surrounding area must be free from any chemical, fuel, and oil spills that originated as a result of the operational activities.
6. The site and its surrounding area must be free from any hazardous or general waste pollution that originated as a result of the operational activities.
7. The operator of the site must abide to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.

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.

Bulk services will have to be installed and available at the boundary of the site prior to the occupation of the site.

The master plan for the Precinct should be amended to accommodate the open space network as described in this report.

A site specific storm water management plan needs to be developed.

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.

This Basic Assessment Report has investigated and assessed the significance of the predicted positive and negative impacts associated with the proposed development.

It is the opinion of the EAP that:

- There are no fatal flaws associated with the proposed development and that all impacts can be adequately mitigated to reduce the risk or significance to an acceptable level;
- The significance of the benefits associated with the proposed development outweigh the significance of the negative aspects;
- The Basic Assessment Report contains sufficient information to allow DEA&DP to make an informed decision.
- Therefore, provided that the specified mitigation measures stated herein are effectively implemented, it is recommended that the project receive Environmental Authorisation in terms of the EIA Regulations promulgated under the National Environmental Management Act (Act 107 of 1998, as amended).

In order to ensure the effective implementation of the mitigation and management actions, an EMPr has been compiled and is included in **Appendix H** of this Report. The mitigation measures necessary to ensure that the project is planned, constructed, operated and decommissioned in an environmentally responsible manner are listed in this EMPr. The EMPr is a dynamic document that should be updated regularly and provides clear and implementable measures for the proposed residential development and filling station.

Furthermore, this Basic Assessment is only for the Listed Activities triggered in terms of this application as per the project description. It is therefore important to note that if any other Activities are triggered by the installation of bulk services, the organization installing these services will be required to obtain their own Environmental Authorisation from the relevant and competent authorities.

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

This report is based on current available information and, as a result, the following limitations and assumptions are implicit –

The report is based on the project description provided by the Applicant as a result of reports that was compiled by the following Specialists:

- A Geotechnical Engineer was appointed to determine whether the Geology and Soils of the site is suitable for the proposed development.
- A Civil Engineer was appointed to determine the availability of services and to design the internal services.
- A Traffic Engineer was appointed to assess the road infrastructure.
- A Town and Regional Planner designed the proposed development in such a way that the layout of the proposed development satisfies the needs of future occupiers of the site
- A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- An ecologist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- A Wetland Specialist was appointed to determine the presence or not wetlands and other surface drainage features on and adjacent to the site.
- A Visual Impact Assessment has been done to determine the impact of the development on the sense of place
- An Economical impact assessment has been done in order to determine the impact of the proposed filling station on the area, including other filling stations in the area.
- An assessment of the impact of the proposed development on civil aviation installations were done and a report in this regard was received and incorporated into this document.
- An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- Desktop studies were conducted and alternatives assessed.

Descriptions of the biophysical and social environments are based on specialist fieldwork, investigations, and the Public Participation Process.

This Application only deals with the proposed development as described in this report. Provision of bulk services (including water, sewage, roads and storm water) as planned for by the Local Municipality does not form part of this investigation and it not sure at this stage when these services will become available.

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.

It is perceived that the activity will be completed within 10 years from the date of the Environmental Authorization. Post-Construction monitoring requirements should be finalized once operation of the filling station commences.

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.
Landscaping will be done with indigenous vegetation that occurs naturally in the area. Rain water harvesting will be done and should be linked to landscape irrigation systems or other water consumption areas

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.
The Contractor and Operator would be responsible for the establishment of a solid waste control and removal system in order to prevent the spread of waste in during the construction and operational phases, respectively. The following measures have been included in the EMPr (see Appendix H): • An integrated waste management approach would be used, based on the principles of waste minimisation, reduction, reuse and recycling of materials. Containers for glass, paper, metals and

plastics would be provided. All non-recyclable solid waste would be disposed of off-site at a licenced landfill site.
• All hydrocarbons (e.g. fuel, oils and contaminated soil / materials) and other hazardous waste resulting from spills, refuelling and maintenance activities would be disposed of at a licenced hazardous waste site or, where possible, sold to an approved used-oil recycling company.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
The buildings will be designed to be as energy efficient as possible. In addition, energy saving light bulbs will be used and solar geysers will be installed.	

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I……, ID number ……in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form 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 ("EIA") Regulations, 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;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;

- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;

- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;

- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;

- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;

- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, 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 I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

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

Signature of the Applicant: Date:

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I ……, EAPASA Registration number …….. 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;

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I ……, EAPASA Registration number …….. 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: Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I ……, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

I ……., as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), 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: Date:

Name of company (if applicable):

Appendix A1:
Locality map

SANBI

BGIS Land Use Decision Support (LUDS) Tool

Locality Map

0,9 0 0,46 0,9 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Description

Erf 21244 (175/220), Aalwyndal, Mossel Bay

Legend

- National roads
- Secondary roads
  - ARTERIAL ROUTE
  - MAIN ROAD
  - SECONDARY ROAD
- Minor roads
- Railways
- Local municipalities 2011
- Towns
- International borders
- Provincial borders
- District municiipality
- Local municipalities
- Farm boundaries

1: 18 056

George
AALWYNDAL
THE SITE
NATIONAL ROAD 2 (N2)
MOSSEL BAY
Louis Fourie
Cape Town

Appendix B:
Site development plan

architects | interiors

ebesa

CONCEPTUAL SITE

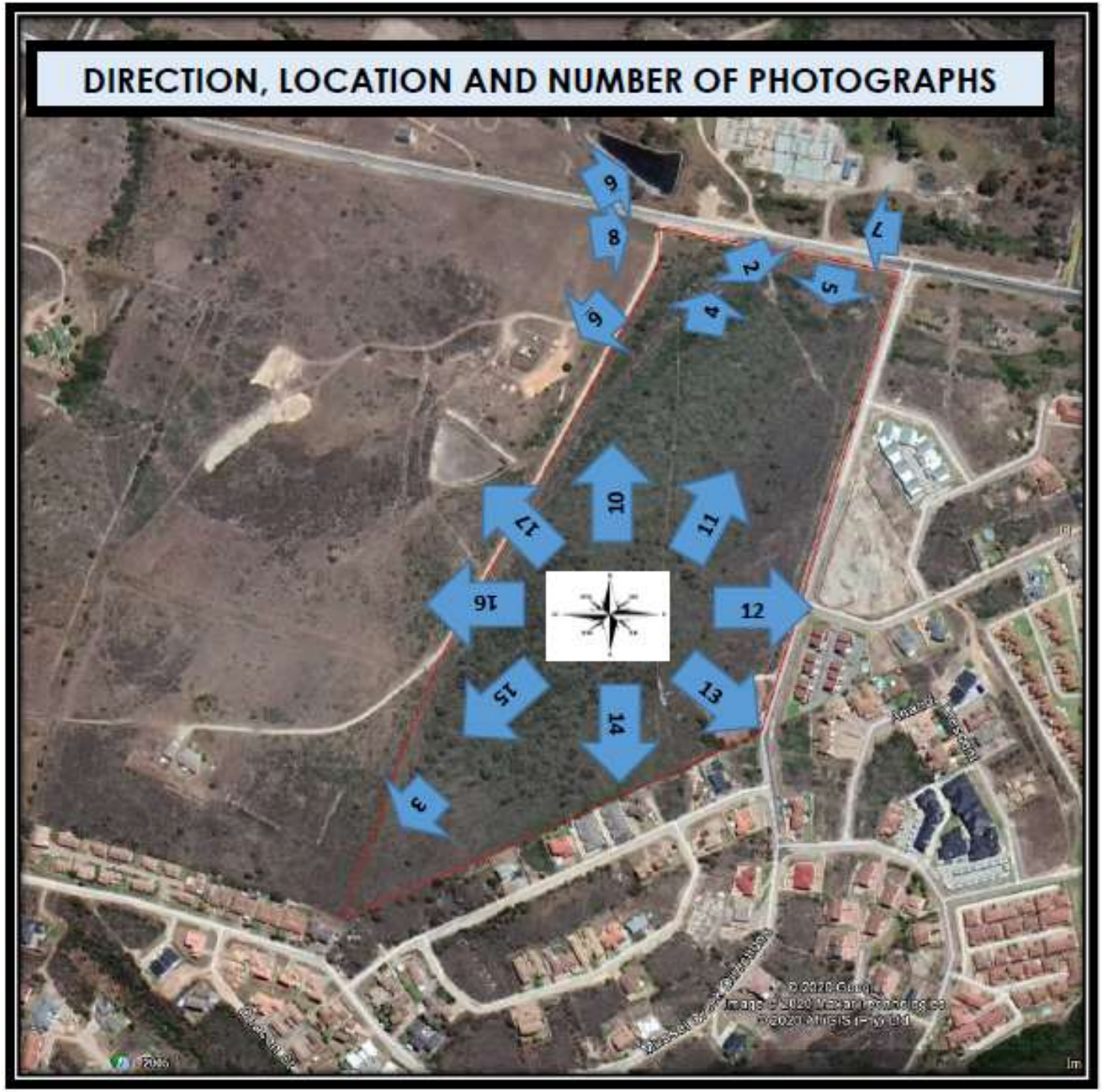
AALWYNDAL MOSSELBAAI DEVELOPMENT

G0931 MBA1

SDP

DATE	30/10/2018		6
SCALE	NOT TO SCALE	A3	

Appendix C: Photographs


DIRECTION, LOCATION AND NUMBER OF PHOTOGRAPHS
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

Photograph 1 Arial view of residential house that has been constructed on site. (24 October 2018)

Photograph 2 Track along powerline at the site. Powerline can also be seen in the background. (January 2020)
Photo: R.F. Terblanche

Photograph 3: South-western part of the site with a view of the residential development located adjacent to the site. (January 2020)
Photo: R.F. Terblanche

Photograph 4: Northern part of the site with a view of the substation that is located adjacent to the site opposite the road. (January 2020)
Photo: R.F. Terblanche

Photograph 5: Eastern part of the site with a view of the road and residential development located adjacent to the site. (January 2020)
Photo: R.F. Terblanche

Photograph 6: View towards ground wall of dam (artificial waterbody) at neighboring area west of the site. (January 2020)
Photo: R.F. Terblanche

Photograph 7: 4 View of tar road north of the site. (January 2020)
Photo: R.F. Terblanche

Photograph 8: View towards the east of the depression (technically a very small artificial waterbody where water may gather sporadically) at northwestern corner of the site. Tar road (Aalwyn Road) visible in background is north of the site. (January 2020)
Photo: R.F. Terblanche

Photograph 9: In-channel dam (artificial waterbody) north of the site. (January 2020)
Photo: R.F. Terblanche

Photograph 10: View towards the North (October 2018)

Photograph 11: View towards the North-East (October 2018)

Photograph 12: View towards the East (October 2018)

Photograph 13: View towards the South-East (October 2018)

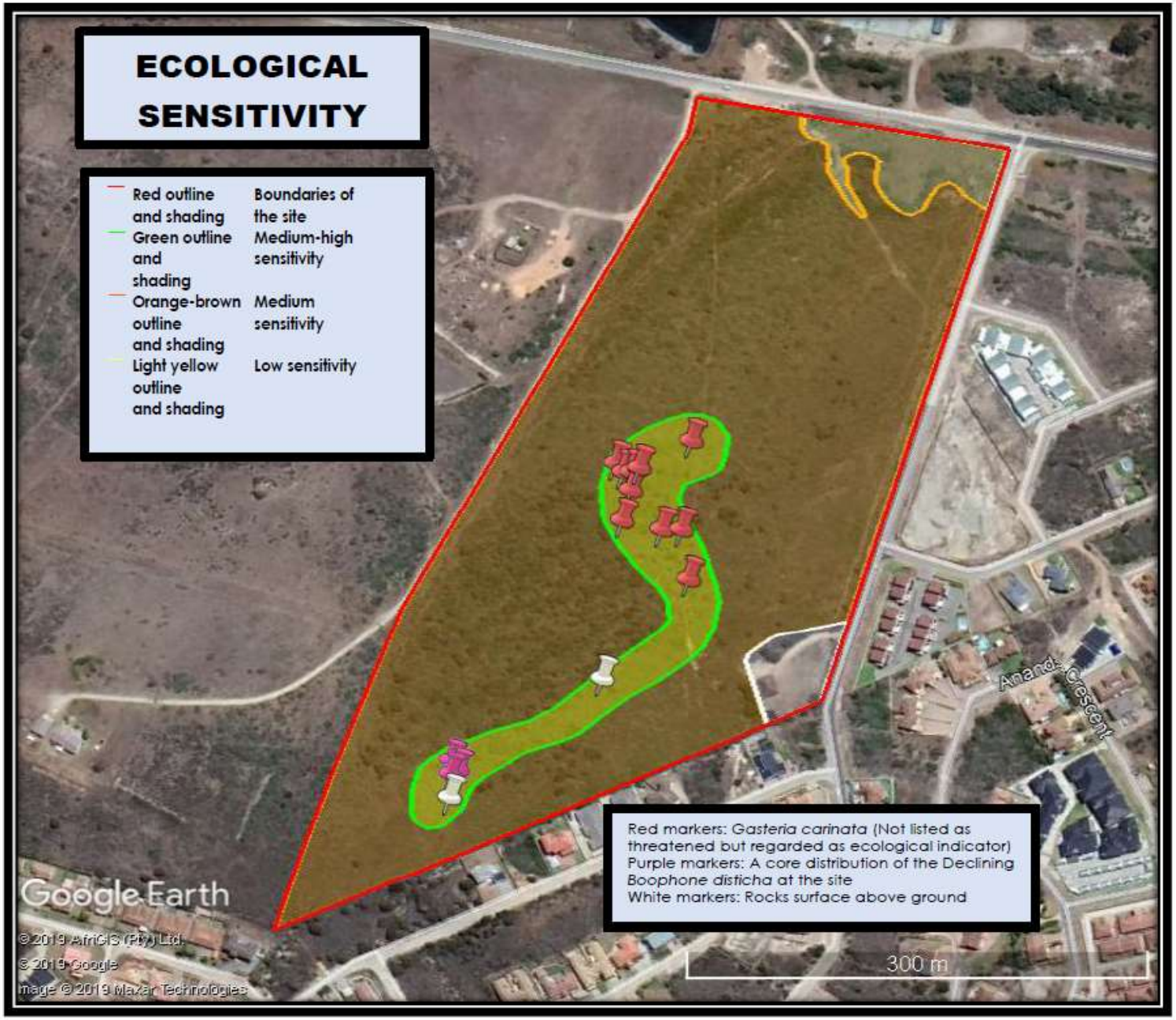
Photograph 14: View towards the South (October 2018)

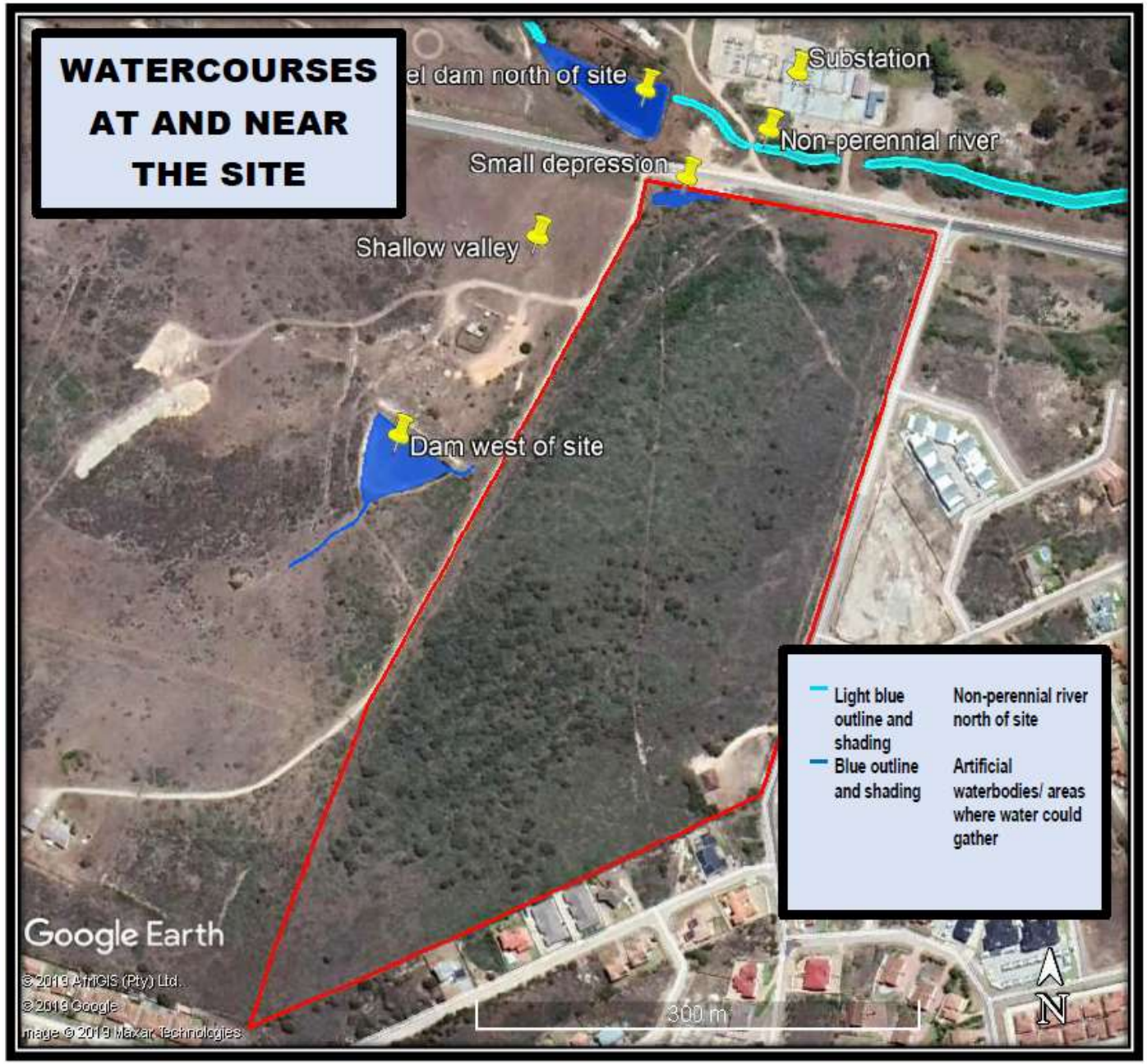
Photograph 15: View towards the South-West (October 2018)

Photograph 16: View towards the West (October 2018)

Photograph 17: View towards the North-West (October 2018)

Appendix D:
Biodiversity overlay map


ECOLOGICAL SENSITIVITY
Red outline and shading Boundaries of the site
Green outline and shading Medium-high sensitivity
Orange-brown outline and shading Medium sensitivity
Light yellow outline and shading Low sensitivity
Red markers: Gasteria carinata (Not listed as threatened but regarded as ecological indicator)
Purple markers: A core distribution of the Declining Boophone disticha at the site
White markers: Rocks surface above ground
Anand Crescent
300 m
Google Earth
© 2019 AfriGIS (Pty) Ltd.
© 2019 Google
Image © 2019 Maxar Technologies


WATERCOURSES AT AND NEAR THE SITE
el dam north of site
Substation
Non-perennial river
Small depression
Shallow valley
Dam west of site
Light blue outline and shading
Non-perennial river north of site
Blue outline and shading
Artificial waterbodies/ areas where water could gather
Google Earth
© 2019 AfriGIS (Pty) Ltd.
© 2019 Google
Image © 2019 Maxar Technologies
300 m
N

architects | interiors

ebesa

CONCEPTUAL SITE

AALWYNDAL MOSSELBAAI DEVELOPMENT

G0931 MBA1

SDP

DATE	30/10/2018		6
SCALE	NOT TO SCALE	A3	

SANBI

BGIS Land Use Decision Support (LUDS) Tool

Sensitivity Map

Description

Erf 21244 (175/220) Alwyndal, Mossel Bay

Legend

- National roads
- Secondary roads
  - ARTERIAL ROUTE
  - MAIN ROAD
  - SECONDARY ROAD
- Minor roads
- Railways
- Local municipalities 2011
- Towns
- Local municipalities
- Farm boundaries
- Mossel Bay CBA1
  - CBA: Terrestrial
  - CBA: Forest
  - CBA: River
  - CBA: Estuary
  - CBA: Wetland
- Mossel Bay CBA2
  - CBA2: Aquatic
  - CBA2: Terrestrial
- Mossel Bay ESA1
  - ESA: Aquatic
  - ESA: Terrestrial
- Mossel Bay ESA2
  - ESA2: Restore from plantation or high density IAP
  - ESA2: Restore from other land use

1: 9 028

0,5 0 0,23 0,5 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix E: Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.

Will be included in the Final BAR.

Appendix E1: Final Comment/ROD HWC.

Application Submitted, awaiting response. Will be included in the BAR.

Appendix E2: Copy of comment from Cape Nature.

Will be included in the BAR.

Appendix E3: Final Comment from the DWS.

Will be included in the BAR.

Appendix E4: Comment from the DEA: Oceans and Coast.

Not Applicable

Appendix E5: Comment from the DAFF.

Will be included in the BAR.

Appendix E6: Comment from WCG: Transport and Public Works.

Will be included in the BAR.

Appendix E7: Comment from WCG: DoA.

Not Applicable

Appendix E8: Comment from WCG: DHS.

Not Applicable

Appendix E9: Comment from WCG: DoH.

Not Applicable

Appendix E10:Comment from DEA&DP: Pollution Management

To be included in the BAR

Appendix E11:Comment from DEA&DP: Waste Management

To be included in the BAR

Appendix E12:Comment from DEA&DP: Biodiversity

To be included in the BAR

Appendix E13:Comment from DEA&DP: Air Quality

To be included in the BAR

Appendix E14:Comment from DEA&DP: Coastal Management

Not Applicable

Appendix E15:Comment from the local authority

To be included in the BAR

Appendix E16:Confirmation of all services (water, electricity, sewage, solid waste management)

Has been designed by the Engineer, however does not form part of this application

Appendix E17:Comment from the District Municipality

To be included in the BAR

Appendix E18:Copy of an exemption notice

Not Applicable

Appendix E19:Pre-approval for the reclamation of land

Not Applicable

Appendix E20:Proof of agreement/TOR of the specialist studies conducted.

See Section I:1

Appendix E21:Proof of land use rights.

Appendix E22: Proof of public participation agreement for linear activities.

Not Applicable

Appendix F:
Public participation.

Register of I&AP's (To be included in the BAR)

Comments and Response Report (To follow as part of the BAR)

Proof of Notices
Site Notice placed 08/06/2021:

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
(Pre-Application Process) 16/3/3/6/7/1/D6/8/0007/20

Notice is hereby given of an Environmental Impact Assessment Process to be undertaken. This process will be undertaken in terms of Section 24(M) and as made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended) Regulations promulgated on 07 April 2017). The proposed project is identified as, and will be conducted in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1 Activity no. 14 and 27) and (Government Notice No. R.324 Listing Notice 3 Activity no 12(i)(ii)(iii)(v)). This advertisement complies with the instructions regarding such notices. National Environments: Management Act (Act No. 107 of 1998, as amended) (Amended Regulations 17 April 2017) (Government Notice No. R.326 of 2017) 41(2)(a),(3)(a&b) and 3(4)(a&b). The competent authority is the Western Cape Department of Environmental Affairs and Development Planning, Region 3. The Responsible officer is Mr Steve Kleynhans Tel: 044 803 8600. Steve.Kleynhans@westerncape.gov.za

PROJECT NAME:

The proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 170 public visitors (3 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21344 (175200), Aalwprstad, Mossel Bay.

PROJECT DESCRIPTION:

The site is currently zoned Residential 1 and allows for two dwelling units to be built. It is proposed that this be increased to build 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a filling station.

CLIENT:
Henrie Bekker Familie Trust

CONSULTANT AND CONTACT PERSON:
Mr. J.P. De Villiers of AB Enviro Consult
7 Louis Leipoldt Street, Patchefstroom, 2531
Tel: 083 9469 169
Fax: 018 293 0671
E-mail: ab@enviro.co.za

START DATE OF THIS PUBLIC PARTICIPATION PROCESS: 18th June 2021

A copy of the Pre-Application Basic Assessment Report is available at the following Dropbox link: https://www.dropbox.com/sh/4jwn1uqsbtu7f1s/AAAqwcWbnLpbVLCAMdOxkwwVa?dl=0
Should you not have access to DropBox, a CD will be provided to you by the Consultant. Alternative at the details as provided above) upon request. Should you have any other Special needs, the Consultant can also be contacted to make arrangements in order to cater for your specific Special need. In order to register as an Interested and/or affected party please send your contact details to the Consultant. Parties wishing to comment must do so within 30 days of the starting date of this public participation process. In writing via e-mail, WhatsApp or Fax, to the Consultant at the details as provided above).

Proof of Covid-19 Prevention measures (Sanitization)

Proof of Notices
Proof of Press Notice (Mossel Bay Advertiser) 11/06/2021

Proof of Notices

Proof Public Participation letter drop as agreed in the PPP with all Covid-19 prevention measures in place:

Envelope sealed in sanitized Plastic bag as agreed in the Public participation plan

Content of notification below (Notification, Copy of content of Newspaper advertisement and Background Information Document)

AB ENVIRO

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
Fax: + 27 (18) 293 0671
E-mail:
jp@abenviro.co.za

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

The Owner/ Occupier

11/06/2021

Dear Sir / Madam

Environmental Impact Assessment (Basic Assessment) for The proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay.

AB ENVIRO CONSULT CC was appointed by **Hennie Bekker Familie Trust** to submit an application to the Western Cape Department of Environmental Affairs and Development Planning for the above mentioned proposed development.

Attached please find a notification and a Background Information Document (BID) in relation to the proposed development. An electronic copy of the Draft Basic Assessment Report will be available from the 11th June 2021, and is obtainable as described in the attached notice and BID. Please follow the instructions as to how to register should you wish to object to, and or comment. Please also note that all representations becomes public information.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
(EAP-EAPASA: 2019/808)

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
(Pre-Application Process) 16/3/3/6/7/1/D6/28/0007/20

Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2014 (Government Notice No. R.327 Listing Notice 1; Activity no. 14 and 27) and (Government Notice No. R.324 Listing Notice 3; Activity no 12(i)(i)(ii)(vi)). This advertisement complies with the instructions regarding such notices, National Environmental Management Act (Act No. 107 of 1998, as amended) (Amended Regulations 17 April 2017) (Government Notice No. R.326 of 2014) (Regulation 41(2)(c)(d)). The competent authority is the Western Cape Department of Environmental Affairs and Development Planning, Region 3.
The Responsible officer is: Mr. Steve Kleynhans: Tel: 044 805 8600,
Steve.Kleinhans@westerncape.gov.za

PROJECT NAME:

The proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay.

PROJECT DESCRIPTION:

The site is currently zoned Residential 1 and allows for two dwelling units to be build. It is proposed that this be increased to build 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a filling station.

CLIENT:
Hennie Bekker Familie Trust

CONSULTANT AND CONTACT PERSON:
Mr. J.P. De Villiers of AB Enviro Consult
7 Louis Leipoldt Street, Potchefstroom, 2531
Tel: 083 5488 105
Fax: 018 293 0671
E-mail: jp@abenviro.co.za

START DATE OF THIS PUBLIC PARTICIPATION PROCESS: 18th June 2021

A copy of the Pre-Application Basic Assessment Report is available at the following DropBox link: https://www.dropbox.com/sh/6jwr1zaszkul7js/AAApcmf0nLq2yLCJKA6Osdpwa?dl=0
Should you not have access to DropBox, a CD will be provided to you by the Consultant (Reachable at the details as provided above) upon request. Should you have any other Special needs, the Consultant can also be contacted to make arrangements in order to cater for your specific Special need. In order to register as an Interested and/or affected party please send your contact details to the Consultant. Parties wishing to comment must do so within 30 days of the starting date of this public participation process, in writing via e-mail, WhatsApp or Fax, to the Consultant (at the details as provided above).

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
Fax: + 27 (18) 293 0671
jp@abenviro.co.za

BACKGROUND INFORMATION DOCUMENT

Project reference number: 16/3/3/6/7/1/D6/28/0007/20

Western Cape Department of Environmental Affairs and Development Planning, Region 3:

Responsible officer: **Mr. Steve Kleynhans** reachable at 044 805 8600

E-mail: Steve.Kleinhans@westerncape.gov.za

Environmental Impact Assessment (Basic Assessment) for The proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay.

INTRODUCTION

This document serves to provide you as an interested and/or affected party (I&AP) with background information in relation to the application for environmental authorization for the proposed eradication of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, 912 parking bays and streets as well as the construction of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mossel Bay. The site is currently zoned Residential 1 and allows for 2 dwelling units to be built.

The activity is listed in terms of the Regulations (in force since 4th of December 2014) in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998) and published in Government Notice No. R 326 of 2014. According to these regulations, the proposed activity is described under:

Government Notice no. R327, Listing Notice 1, Activity no. 14

"The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres"

Project specific:

The development and operation of a facility for the storage of 115 cubic meters (5 x 23 000 litre tanks) of a dangerous good (Filling Station) situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

Government Notice no. R327, Listing Notice 1, Activity no. 27

"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—
(i) the undertaking of a linear activity; or
(ii) maintenance purposes undertaken in accordance with a maintenance management plan."

Project specific:

The clearance of 9 hectares of indigenous vegetation in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, a filling station, 912 parking bays and streets situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

Government Notice no. R324, Listing Notice 3, Activity no. 12 (i)(i)(ii)(vi)

"The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

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;

ii. Within critical biodiversity areas identified in bioregional plans"

Project specific:

The clearance of 15 300 square meters of indigenous vegetation located within a Terrestrial CBA 1, in order to establish a residential development consisting of 72 x 6 block residential units, 2 x 12 block residential units, a filling station, 912 parking bays and streets situated on Erf 21244 (175/220), Aalwyndal, Mosselbaai.

FIGURE 1: LOCALITY MAP: Erf 21244 (175/220), Aalwyndal, Mossel Bay

The study is being conducted according to normal scientific practices. A theoretical background review was compiled for the different variables by using available information from the literature. Field verification was undertaken and visits paid to the site to gather further information and/or to verify information. Specialist studies were undertaken to determine the impacts on sensitive areas and to determine whether the proposed project can be sustainably implemented. The specialists will also advise on mitigation measures where applicable.

PROJECT BACKGROUND AND PROPOSAL

The site which is located on the northern slope of a localized hill, spans from the gentle sloping summit through the steeply sloping side slope to the gentle sloping foot slope of the hill. Overall, the site is seen to display a variable sloping nature, with the slope generally following a radial sloping nature around the hill summit. The major slope is however in a northerly direction, from the higher lying hill summit in the south (approximately 85 mamsl) towards the lower lying area in the north (approximately 30 mamsl).

The site is roughly rectangular shaped and zoned "Residential 1". One Residential house has been constructed on site. The remainder of the site is mostly undeveloped. An overhead power line traverses the north eastern corner of the site. The northern and north western boundary of the site displays evidence of vegetation clearance for a firebreak. Heaps of dumped material, which over time have been covered with vegetation is also scattered across the site. Tracks, fences and alien invasive plant species are found at the site.

The study area is located on the outskirts of the town of Mossel bay, within the Mossel Bay Local Municipality forming part of the Eden District Mossel Bay within the south eastern portion of the Western Cape Province of South Africa. The site is located in an area that has been earmarked for development by the Mossel Bay Local Municipality in terms of Section 9(1) of the Municipal By-Law on land use planning and is known as the Aalwyndal Precinct Plan.

The Mossel Bay area is experiencing a great influx of people. In 2015 the Western Cape Provincial Government embarked on a Growth Options Study for the Mossel Bay Municipal area. During the period 2000-2010 development areas were defined by developers, structure plans were amended and developments approved on an ad hoc basis, without evaluating the impact of Urban Sprawl on sustainability.

The study concluded that the Urban Sprawl in the Mossel Bay Municipal Area is not sustainable and that the residential densities in Mossel Bay are too low. Therefore Aalwyndal, amongst other areas must be densified to ensure a more sustainable urban environment. It was recommended that the area be earmarked to achieve a residential density of 25 units per ha

The proposed development is the product of a considered design and layout following various specialist inputs and national, provincial and municipal guideline considerations. Various alternatives have been considered and are discussed in the "alternatives" section of the report which details the process which has led to the proposed preferred alternative. The site is influenced by a number of design factors that were considered for the proposed layout plan to be acceptable. These factors include the slope of the site, environmental sensitivity, service provision, erf size, access, road layout and community facilities as well as the geotechnical features. The alternatives considered was influenced particularly by geotechnical considerations, location of waterbodies, and ecological sensitivity of the site as well as traffic considerations.

The latest conceptual design proposes a mixed use development, consisting of two main components: The first and largest component consists of 456 residential dwellings and the second component, a filling station. *The conceptual design proposes a density of **36.26 Units/hectare***. The position of the proposed filling station has been moved towards the Eastern site Boundary as recommended by the latest Traffic Impact Assessment.

Proposed Layout Plan

PROF A B DE VILLIERS (M Sc, PhD; SACNASP)
MR.J.P. DE VILLIERS (M Sc, HED, EAP-EAPASA); MRS.J.E. DU PLOOY (M.E.M, EAP-EAPASA)

The two residential portions are made up of 37 blocks each containing 6 individual, 3-storey dwelling units, except for one block in each portion which contains small, 12 individual, 1 bedroom units.

3D Perspective of the proposed development

Each residential portion consist of 228 units of 4 different sizes ranging from the largest 97m², three bedroom units to the smallest 56m² one bedroom units.

Conceptual design

The two residential portions are divided by a new proposed road that serves as an alternative route to Aalwyn Road and as a connectivity corridor between the older and new neighbourhood as per the Aalwyndal Precinct Plan proposal in 2018. The division of the proposed site further prevent the new development to form a border and instead provide an opportunity for integration between the new extension zone and the existing; more established precinct.

PROF A B DE VILLIERS (M Sc, PhD; SACNASP)
MR.J.P. DE VILLIERS (M Sc, HED, EAP-EAPASA); MRS.J.E. DU PLOOY (M.E.M, EAP-EAPASA)

In the Municipalities Precinct Plan for the area, open spaces were identified as part of the master plan for the area. This Masterplan was done on a Macro scale and it was indicated from the start that site specific investigations will determine the final position of the open space network. It was also indicated that as this development is one of the first applications for the area, future developers will have to accommodate the extension of this applications' open space network into their proposed developments, thereby ensuring a meaningful, open space network for the whole area.

The Mossel Bay Municipality commissioned a Biodiversity Assessment for the area. The Biodiversity Assessment was done by combining a Vegetation Assessment, a Fresh Water Habitat Assessment and an Ecological viability Assessment. In terms of this assessment the proposed development falls within an area that has been identified as being "Very High Sensitivity" and has led to the inclusion of this area (The Application site) into the Open Space Network proposed for the Precinct Plan.

The Ecological Fauna and Flora Habitat study that was prepared for the site revealed that the ecological sensitivity at most of the site is medium despite the fact that it forms part of the Groot Brak Dune Strandveld (FS 9) which is Endangered. Considerably degraded areas at the northeastern parts of the site are regarded as a low sensitivity area. Vegetation at most of the site consists of sclerophyllous shrub mixed with a conspicuous infestation of the alien invasive *Acacia cyclops* (Redeye). Only about 40%, or 5,2 ha (the entire site is 12,5746 ha)of this vegetation type is still recognisable. For most of the site thorny sclerophyllous shrub is present as well as conspicuous infestation by the alien invasive *Acacia cyclops* (Redeye). A patch where *Elytropappus rhinocerotis* (Renosterbos) is more conspicuous occurs at the southwestern part of the site. Some areas have hitherto been cleared where pioneer species such as *Atriplex semibaccata* is noticeable.

The outcome of the Ecological assessment noted that the Open Space corridor recommended by the Precinct Plan should be moved to the more sensitive middle of the site as incorporated into the proposed layout plan.

THE BASIC ASSESSMENT PROCESS

In accordance with the Regulations (in force since 4th of December 2014) in terms of Section 24(M) and 44 made under section 24(5) of the Act and published in (Amended Regulations 17 April 2017) (Government Notice No. R.326 of 2014), a Basic Assessment needs to be undertaken and an Environmental Management Plan compiled and approved by the Western Cape Department of Environmental Affairs and Development Planning, before the proposal can commence. The aim of this process is to identify and assess the potential impacts associated with the proposed development and to develop measures by which potential negative biophysical and socio-economic impacts can be mitigated and positive benefits can be enhanced. This process will provide the authorities and I&APs with clear, accurate and understandable information about the expected environmental impacts associated with the proposed development.

HOW TO COMMENT

A copy of the Draft Basic Assessment Report (Pre-Application) will be available from the **11th June 2021** and interested and/or affected parties may request an electronic copy from the address below. Parties wishing to formally object to and / or comment on the proposed development are requested to forward their objections and comments (with reasons), in writing, to:

Mr. JP de Villiers of AB Enviro Consult; 7 Louis Leipoldt Street, Potchefstroom, 2531
Tel: 083 5488 105
Fax: 018 293 0671
E-mail: jp@abenviro.co.za

Kind regards

Mr JP de Villiers
(EAP-EAPASA: 2019/808)

Proof of Notification of Neighbours, face mask and gloves in place as per agreed Covid-19 preventative measures: (08/06/2021)


SOLD

Gloves disposed in a used gloves bag:

Proof of e-mail sent to managing agents of neighbouring Mi-Casa for distribution to all occupiers/owners within the complex – marlise.giani@gmail.com:

Proof of e-mail sent to managing agents of neighbouring Barbados for distribution to all occupiers/owners within the complex – eleanorpropertymanage2@tlbotha.co.za:

List of Stakeholders Notified as agreed in PPP

- Department of Agriculture Private Bag X1 Elsenburg 7606 Brandon Layman/Cor van der Walt 021 808 5099 021 808 5092 brandonl@elsenburg.co.za LandUse.Elsenburg@elsenburg.com
- CapeNature Private/Bag X6546 George 6530 Colin Fordham 044 802 5313 cfordham@capenature.co.za
- CapeNature Private/Bag X6546 George 6530 Annelise Schutte-Vlok 044 203 6300 avlok@capenature.co.za
- CapeNature Private/Bag X6546 George 6530 Natalie Baker 044 802 5326 nbaker@capenature.co.za
- Breede-Gouritz CMA, Rudzani Makahane, RMakahane@bgcma.co.za
- Heritage Western Cape Private Bag X9067 Cape Town 8001 Zethembe Khuluse zethembe.khuluse@westerncape.gov.za
- Department of Transport and Public works Ms Grace Swanepoel 021 483 4669 Grace.Swanepoel@westerncape.gov.za
- Department of Water & Sanitation Private Bag X16 Sanlamhof 7532 D Daniels / N.Ndobeni 021 941 6189 086 585 6935 danielsd@dwa.gov.za ndobenin2@dwa.gov.za
- Mossel Bay local municipality Private Bag X29, Mossel Bay 6500 The MM (Adv Thys Giliomee) 044 606 5000 admin@mosselbay.gov.za
- Mossel Bay local municipality Private Bag X29, Mossel Bay 6500 Jaco Roux 044 606 5071 jroux@mosselbay.gov.za
- Garden Route District Municipality Johan Compion 044 874 6626 jcompion@gardenroute.gov.za
- Western Cape Government: Department of Environmental Affairs and Development Planning – Pollution and Chemicals Management; Zayed Brown, 082 788 1288, zayed.brown@westerncape.gov.za
- Western Cape Government: Department of Health; Manie Abrahams, 044 803 2727, manie.abrahams@westerncape.gov.za
- Fuel Retailers association; Jill Poole, reception@fra.org.za, 0118862664

Appendix G: Specialist Report(s)

Appendix G1.1:
Geo-Technical Report

Appendix G1.2: Addendum to Geo-Technical Report

Appendix G.2:
Civil Engineering Report

Appendix G.3: Fauna and Flora Habitat Report

Appendix G.4:
Wetland study Report

Appendix G.5: Heritage impact Assessment Report

Appendix G.6:
Traffic Impact Assessment Report

Appendix G.7:
Flood line Study Report

Appendix G.8:
Visual Impact Assessment Report

Appendix G.9:
Civil Aviation Assessment Report

Appendix G.10: Economic Assessment Filling station Report

Appendix H: EMPr

Appendix I: Screening tool report

Appendix J: The impact and risk assessment for each alternative

Included in the report under Section H Paragraph 4

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

Included in the report under Section C Paragraph 4.12