

**PROPOSED LIGHT INDUSTRIAL DEVELOPMENT
(STORAGE FACILITY) ON PORTION A OF ERF 21277
AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN
CAPE.**

2nd DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

**(INCLUDING THE WASTE, WATER USE AND ELECTRICITY CONSUMPTION
MINIMIZATION AND MANAGEMENT PLAN)**

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Prepared for:

Dream Supreme Properties 14 cc
PO Box 834
Hartenbos
6520

Prepared by:

Kapp Environmental Consultants (Pty) Ltd
9 Wassung Street
Mossel Bay
6506
Cell: 082 675 5233
E-Mail: renier@kappec.co.za



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KAPPEC

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ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CEMP	Construction Environmental Management Programme
DEA&DP	Department of Environmental Affairs and Development Planning
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWS	Department of Water Affairs and Sanitation
EA.....	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO.....	Environmental Control Officer

EIA.....	Environmental Impact Assessment
EMP	Environmental Management Programme
EO	Environmental Officer
ESO	Environmental Site Officer
I&AP	Interested and Affected Parties
NEMA	National Environmental Management Act
NWA	National Water Act
RE.....	Resident Engineer
RMMP.....	River Maintenance Management Plan

DEFINITIONS

Alien species - Plants and animals which do not arrive naturally in an area - they are brought in by humans. Alien plants often force indigenous species out of the area. Rooikrans is a good example of alien species in the Cape.

Alternative - A possible course of action, in place of another, that would meet the same purpose and need defined by the development proposal. Alternatives considered in the EIA process can include location and/or routing alternatives, layout alternatives, process and/or design alternatives, scheduling alternatives or input alternatives.

Aspect – Element of an organisation's activities, products, or services that can interact with the environment.

Auditing - A systematic, documented, periodic, and objective evaluation of how well the environmental management programme is performing with the aim of helping to safeguard the environment by: facilitating management control which would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems.

Biodiversity - The rich variety of plants and animals that live in their own environment. Fynbos is a good example of rich biodiversity in the Cape.

Built environment - Physical surroundings created by human activity, e.g. buildings, houses, roads, bridges and harbours.

Conservation - Protecting, using, and saving resources wisely, especially the biodiversity found in an area.

Contamination - Polluting or making something impure.

Corrective (or remedial) action - Response required addressing an environmental problem that is in conflict with the requirements of the EMP. The need for corrective action may be determined through monitoring, audits, or management review.

Degradation - The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

Ecology - The scientific study of the relationship between living things (animals, plants, and humans) and their environment.

Ecosystem - The relationship and interaction between plants, animals and the non-living environment.

Environment - Our surroundings, including living and non-living elements, e.g. land, soil, plants, animals, air, water, and humans. The environment also refers to our social and economic surroundings, and our effect on our surroundings.

Environmental Impact Assessment (EIA) - An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting, and assessing the potential positive and negative social, economic, and biophysical impacts of a proposed development. The EIA

includes an evaluation of alternatives; recommendations for appropriate management actions for minimising or avoiding negative impacts and for enhancing positive impacts; as well as proposed monitoring measures.

Environmental Management System (EMS) - Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes, and resources for environmental management. The ISO14001 EMS standard has been developed by the International Standards Organisation.

Environmental policy - Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

Fynbos - Low-growing and evergreen vegetation found only in the south Western Cape. Fynbos is known for its rich biodiversity.

Habitat - The physical environment that is home to plants and animals in an area, and where they live, feed and reproduce.

Hazardous waste – Waste, even in small amounts, that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

Impact - A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social, or economic environment within a defined time and space.

Indigenous species - Plants and animals that are naturally found in an area.

Infrastructure - The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

Integrated - Mixing or combining all useful information and factors into a joint or unified whole. See Integrated Environmental Management.

Integrated Environmental Management (IEM) - A way of managing the environment by including environmental factors in all stages of development. This includes thinking about physical, social, cultural, and economic factors and consulting with all the people affected by the proposed developments. Also called "IEM".

Land use - The use of land for human activities, e.g. residential, commercial, industrial use.

Mitigation - Measures designed to avoid, reduce, or remedy adverse impacts

Natural environment - Our physical surroundings, including plants and animals, when they are unspoiled by human activities.

Over-utilisation - Over-using resources - this affects their future use and the environment.

Policy - A set of aims, guidelines, and procedures to help you make decisions and manage an organisation or structure. Policies are based on people's values and goals. See Integrated Metropolitan Environmental Policy.

Process - Development usually happens through a process - a number of planned steps or stages.

Proponent – Client/Developer. Entity which applies for environmental approval and is ultimately accountable for compliance to conditions stipulated in the Environmental authorisation (EA) and requirements of the EMP.

Recycling - Collecting, cleaning, and re-using materials.

Resources - Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

Scoping Report - A report presenting the findings of the scoping phase of the EIA. This report is primarily aimed at reaching closure on the issues and alternatives to be addressed in the EIA (in the case of a full EIA process).

Stakeholders - A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities, and all interested and affected parties.

Storm water management – Strategies implemented to control the surface flow of storm water such that erosion, sedimentation, and pollution of surface and ground water resources in the immediate and surrounding environments are mitigated. This is specifically important during the construction and decommissioning phases of a project.

Sustainable development - Development that is planned to meet the needs of present and future generations, e.g. the need for basic environmental, social, and economic services. Sustainable development includes using and maintaining resources responsibly.

Sustainability - Being able to meet the needs of present and future resources.

Waste Management – Classifying, recycling, treatment, and disposal of waste generated during construction and decommissioning activities.

Wetlands - An area of land with water mostly at or near the surface, resulting in a waterlogged habitat containing characteristic vegetation species and soil types e.g. vleis, swamps.

Zoning - The control of land use by only allowing specific type development in fixed areas or zones

REFERENCES

DEAT (1992) Integrated Environmental Management Guideline Series, Volumes 1-6, Department of Environmental Affairs, Pretoria.

DEAT (2004a) Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Department of Environmental Affairs and Development Planning Generic Environmental Management Plan Guideline, prepared by Strategic Environmental Focus, 2007

Mossel Bay Municipality: Mossel Bay Spatial Development Framework & Environmental Management Framework (06/2002)

Lochner, P. 2005. Guideline for Environmental Management Plans. CSIR Report No ENV-S-C 2005-053 H. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

National Environmental Management Act 107 of 1998 (NEMA)

1. INTRODUCTION AND BACKGROUND

All other approvals must be used in conjunction with this EMP.

Kapp Environmental Consultants (KAPPEC), as independent environmental consultants and impact assessors, has been appointed by Dream Supreme Properties 14 cc, hereafter referred to as the Client, to draft an Environmental Management Programme for the Proposed Light Industrial Development (Storage Facility) on Portion A of Erf 21277, Aalwyndal, Mossel Bay Municipality, Western Cape. The Client will use this Planning, Construction, and Operational Phase Environmental Management Programme (EMP) as a tool in managing the impacts of the proposed storage facility.

This document is based on the EMP Guideline provided by DEA&DP which was compiled in accordance with the Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development (DEAT, 1992). IEM is a key instrument of the National Environmental Management Act [NEMA] (Act No. 107 of 1998). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a methodology for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental and management tools that are appropriate for the various levels of decision-making. One such tool is an Environmental Management Programme (EMP).

The IEM guidelines intend encouraging a pro-active approach to sourcing, collating, and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM 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 Clients) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the Clients);
- democratic regards 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.

These principles are in line with National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which has repealed a number of the provisions of the Environment Conservation Act, 1989 [ECA] (Act No. 73 of 1989), and is focused primarily on co-operative governance, public participation and sustainable development. The new Environmental Impact Assessment Regulations (GN R. No. 327, GN R. No. 325 and GN R. No. 324 [7 April 2017]) under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which replaced the 2014 regulations (GN R. No. 982, R. No. 983 and R. No. 985 [December 2014]) to regulate the procedures and criteria for the submission, processing, consideration and decision on applications for environmental authorization of listed activities.

1.1 SCOPE AND TERMS OF REFERENCE

The general principles contained within this document apply to all **PRE-CONSTRUCTION, CONSTRUCTION AND OPERATIONAL** activities.

Principles of this EMP

This EMP is compiled using the following concepts and implementation requirements so that the higher principles of sustainable development are realized:

- **Continuous improvement.** The project proponent (or implementing organization) must be committed to review and to continually improve environmental management, with the objective of improving overall environmental performance.
- **Broad level of commitment.** A broad level of commitment will be required from all levels of management as well as the workforce in order for the development and implementation of this EMP to be successful and effective.
- **Flexible and responsive.** The implementation of the EMP must be responsive to new and changing circumstances, i.e. rapid short-term responses to problems or incidents. The EMP is a dynamic "living" document and thus regular planned review and revision of the EMP must be carried out.
- **Integration across operations.** This EMP is integrated across existing line functions and operational units such as health, safety, and environmental departments in a company/project. This is done to change the redundant mindset of seeing environmental management as a single domain unit.
- **Legislation.** It is understood that any development project during its construction phase is a dynamic activity within a dynamic environment. The Client, Engineer, Contractor, and sub-contractor must therefore be aware that certain activities conducted during construction may require further licensing or

environmental approval, e.g. river or stream diversions, bulk fuel storage, waste disposal, etc. The Contractor must consult the RE, EO and ECO on a regular basis in this regard.

2. PROPOSED ACTIVITY AND LOCAL CONTEXT

Locality

The proposed development is located in Aalwyndal on Nagtegaal Street, situated to the west of Voorbaai. The site lies at an elevated position on a small plateau surrounded by undulating coastal plains. A series of rivers and drainage lines bisect the coastal plains at various points, flowing towards the ocean. Mossel Bay is situated on a rocky outcrop that terminates at the Point and the area known as Kwanogaba borders Aalwyndal to the south. There is a sharp drop in elevation to the south of the site at the edge of the plateau, through which the N2 descends towards Diaz beach and Voorbaai to the north. The area where the site is located comprises mostly smallholdings approximately 7ha in size of which the majority is currently zoned Single Residential Zone I. Currently Erf 21277 is used as a horse paddock and for grazing with surrounding erven functioning in agricultural and residential pursuits.

Background and Local Context

The proponent, Dream Supreme Properties 14 cc, appointed KAPPEC as an independent environmental consultancy to facilitate the Environmental Impact Assessment (EIA) and public participation process required for the project.

The proposed storage development falls within the Urban Edge and has been earmarked for intensified urban development as per Mossel Bay Spatial Development Framework (2017) and the Aalwyndal Precinct Plan, which was completed in 2018 to guide future development in Aalwyndal. Erf 21277, Mossel Bay, is situated within the 55RDI noise contour where noise levels are considered unsuitable for residential purposes and has been identified as suitable for commercial development, including services related to the Airfield such as storage.

Mossel Bay is situated on a rocky outcrop that terminates at the Point and the area known as Kwanogaba borders Aalwyndal to the south. To the east of Aalwyndal and the site lies the Voorbaai precinct which is marked by light industrial development interspersed with residential areas. Elevation across the site varies from approximately 165 m at the south-eastern corner to approximately 170 m above M.S.L. at the north-western corner. Slopes are moderate across the site not exceeding 1:4 (<25%). Slopes >1:4 increase visual sensitivity due to the need for cut and fill areas needed to accommodate building platforms and roadways.

The site has previously been farmed and is currently used as a horse paddock and for subsequent grazing, therefore areas of pristine, undisturbed vegetation remain. Portion A of Erf 21277, which has been earmarked for development, has been cleared in the past and put to pasture for farm animals. In light of the above, the type of environment can be described as "Areas or routes of low scenic, cultural, historical significance / disturbed".

The type of development falls within Category 4 development: e.g. medium density residential development, sports facilities, small-scale commercial facilities/office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

According to the Botanical Assessment, the proposed site portion on Erf 21277 is located on the Southern Cape Coastal Plateau. The site occurs in a typical fynbos environment which was confirmed by the presence of fynbos species, such as *Aspalathus opaca*, *Metalasia acuta* and several *Herichrysum* species. The fynbos present on the site shows heavy disturbance by grazing and some alien infestation, notably *Acacia cyclops* (rooikrans) and *Cynodon dactylon*. Due to the disturbed nature of the site typical fynbos species such as *Ericas* and *Proteas* were however absent from the site. These species were noted on nearby sites where relatively undisturbed fynbos were encountered.

Many indigenous shrub species were found during the site visit, three Species of Conservation Concern were recorded on site, namely *Hermannia lavandulifolia* (Vul), *Polygala pubiflora* (Vul) and *Ruellia pilosa* (Vul), with the addition of *Euphorbia procumbens* which has recently been dwindling in number.

An Aquatic Biodiversity Compliance Statement was conducted, and the following statement is of consideration.

The Site Investigation confirmed the presence of a natural Channelled Valley-Bottom (CVB) Wetland Area associated with a Non-Perennial Drainage Line situated approximately 420 metres northeast of the proposed development footprint and a Depression Wetland associated with the Mossel Bay Aerodrome situated approximately 800 metres southwest of the concerned development footprint. No aquatic resources were discovered on the concerned portion of Erf 21277 directly.

A Section 21(c) & (i) Risk Assessment Matrix as it pertains to the National Water Act, 1998 (Act No. 36 of 1998) was compiled related to the potential impacts of the development proposal on this Channelled Valley-Bottom (CVB) Wetland System. The proposed development will be located within 500 metres of this wetland system (within the regulated area) in accordance with General Notice 509 of 2016 for Section 21(c) and 21(i) Water Uses of the National Water Act, 1998 (Act 36 of 1998). Based on the outcome of the Section 21(c) & (i) Risk Assessment, the proposed activities associated with the construction and establishment of the proposed Mossel Bay Storage facility has been assessed to have a Low-Risk Significance (with mitigation) on the water source identified.

The author is also of the opinion that the legislative requirement for the proposed storage and solar development on a portion of Erf 21277 in Aalwyndal to register a GA (General Authorisation) in terms of the National Water Act, 1996 (Act No. 36 of 1998) for Section 21 (c) & (i) water use activities, with the BreedeOlifants Catchment Management Agency (BOCMA) could potentially be waived given the associated Low Risk Significance of anticipated impacts together with the significant distance (>400m) of the concerned property to the identified water resource.

The potential waiving of the requirement to register a GA should, however, be supported and confirmed by the Breede-Olifants Catchment Management Agency.

According to Rudzani Makahane from BOCMA, sent via email in correspondence to the revised Aquatic Assessment Report, the following confirmation pertaining to the above has been obtained, "Your request has been granted and the GA is therefore not required."

As a result, no aquatic features occur on the site, and therefore the EAP is disputing the Very High Aquatic Sensitivity determined by the Screening Tool. The proposed structures/infrastructure was assessed to have minimal impact on this wetland system given the location of the development proposal in relation to this aquatic system (>400 metres), the relatively small scale of the development, the fact that, although limiting, will still allow for free movement of water and sediments through this system and the Present Ecological State of this wetland system which was assessed to be Largely Modified (PES Category D) as a result of historical anthropogenic factors. Therefore, the proposed development will not have an impact on any surface or groundwater aquatic resources and mitigation measures have been suggested to limit any factors that might have an impact on the Channelled Valley-Bottom (CVB) Wetland System.

The vegetation on the proposed portion of Erf 21277 can thus be simplified or divided as follows:

- 1) Disturbed areas;
- 2) Artificial farm dam; and
- 3) Natural Wetland (>400m) from the proposed site.

3. PROJECT DESCRIPTION

The proponent, Dream Supreme Properties 14 cc, proposes to develop Portion A of Erf 21277 in Aalwyndal, Mossel Bay into a self-storage facility to occupy the need for light industry within the area and provide storage facilities to the community of Mossel Bay.

Erf 21277, Aalwyndal, Mossel Bay, is approximately 7.7 hectares in extent and is situated on Nagtegaal Street. The proposed development involves the subdivision of Erf 21277 (7.775 ha), as well as the rezoning of an approximately 1.44 ha portion of the subdivided property from Single Residential Zone 1 to Industrial Zone 1 (light industry) as a proposed self-storage facility.



FIGURE 1: LOCALITY MAP OF PORTION A OF ERF 21277

The development herewith applied for on Portion A includes the following components and has been proposed to be developed in two phases:

Phase 1 of the development will entail the development of 228 small self-storage units allocated in four separate blocks with varying building dimensions and unit sizes.

Block 1: Comprising of 42 storage units (3m x 6m).

Block 2: Comprising of 12 storage units (3m x 9m) as well as 1 storage units (5.6m x 9m).

Block 3: Comprising of 35 storage units (3m x 4m) as well as 35 storage units (3m x 7m), thus 70 units in total.

Block 4: Comprising of 33 storage units of (3m x 7.8m); 35 storage units of (3m x 3m); as well as 35 storage units of (3m x 4m).

The total development footprint of phase 1 is proposed to be approximately 4281m². Additionally, an office/toilet structure will be developed comprising of a 38m² footprint.

Phase 2 of the development will entail the development of another 228 small self-storage units allocated in four separate blocks with building dimensions and unit sizes.

Block 5: Comprising of 42 storage units (3m x 6m).

Block 6: Comprising of 12 storage units (3m x 9m) as well as 1 storage units (5.6m x 9m).

Block 7: Comprising of 35 storage units (3m x 4m) as well as 35 storage units (3m x 7m), thus 70 units in total.

Block 8: Comprising of 33 storage units of (3m x 7.8m); 35 storage units of (3m x 3m); as well as 35 storage units of (3m x 4m).

The total development footprint of phase 2 is proposed to be approximately 4281m². Additionally, an office/toilet structure will be developed comprising of a 38m² footprint.

In total, the proposed development will consist of 456 small self-storage units and a development area of 8562 m².

It is proposed that the administration office and toilet facility will be connected to a conservancy tank and the existing water line along Nagtegaal Street will supply the required potable water.

Furthermore, as per the Preferred Site Development Plan (AD21277/2023 dated 21 January 2024) 75 parking bays are required and 76 shaded parking bays have been provided for. One parking bay will be distributed and constructed per 100 m² of self-storage units.

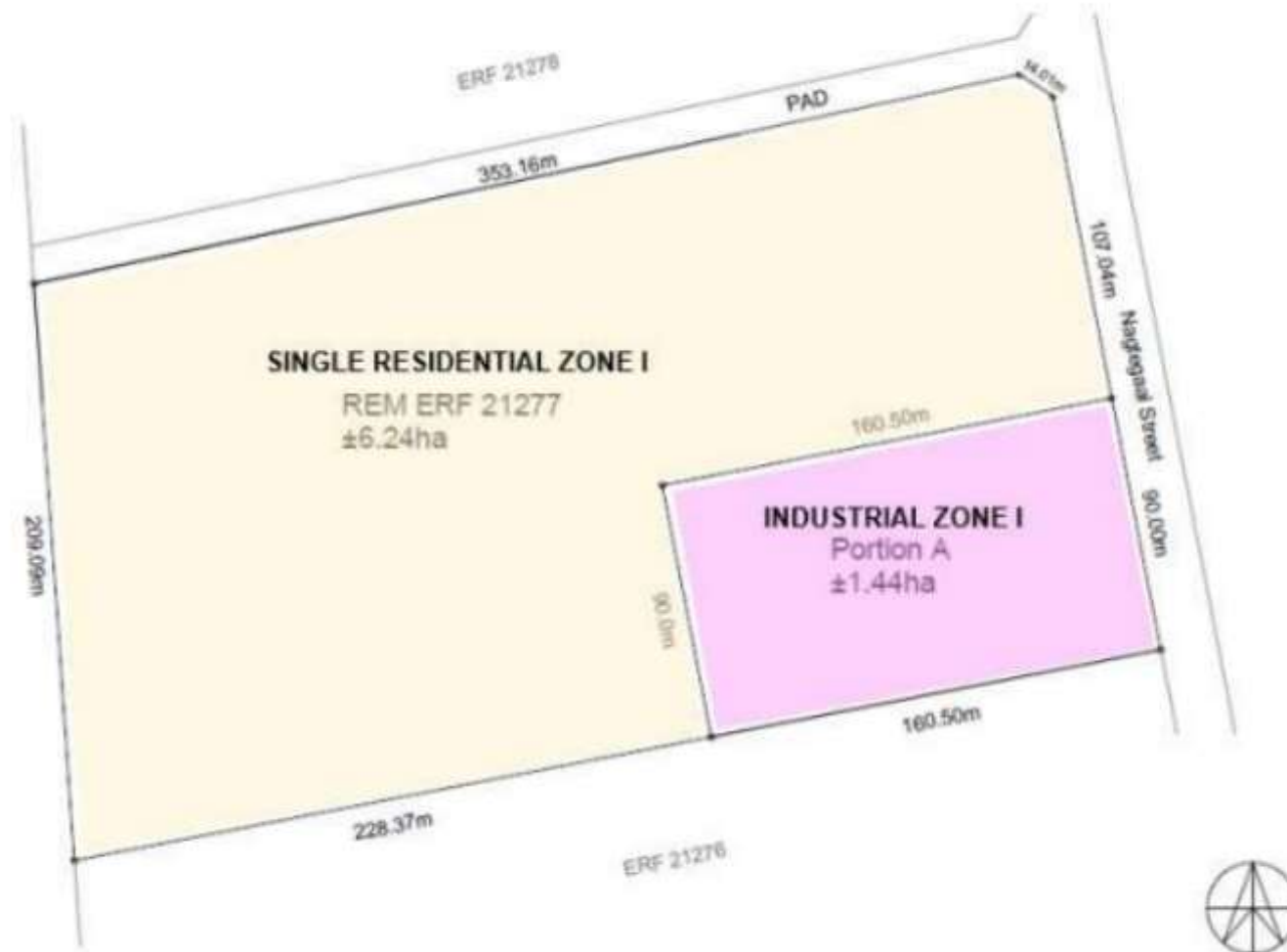


FIGURE 3: DEPICTS THE REZONING OF THE PROPOSED DEVELOPMENT SITE

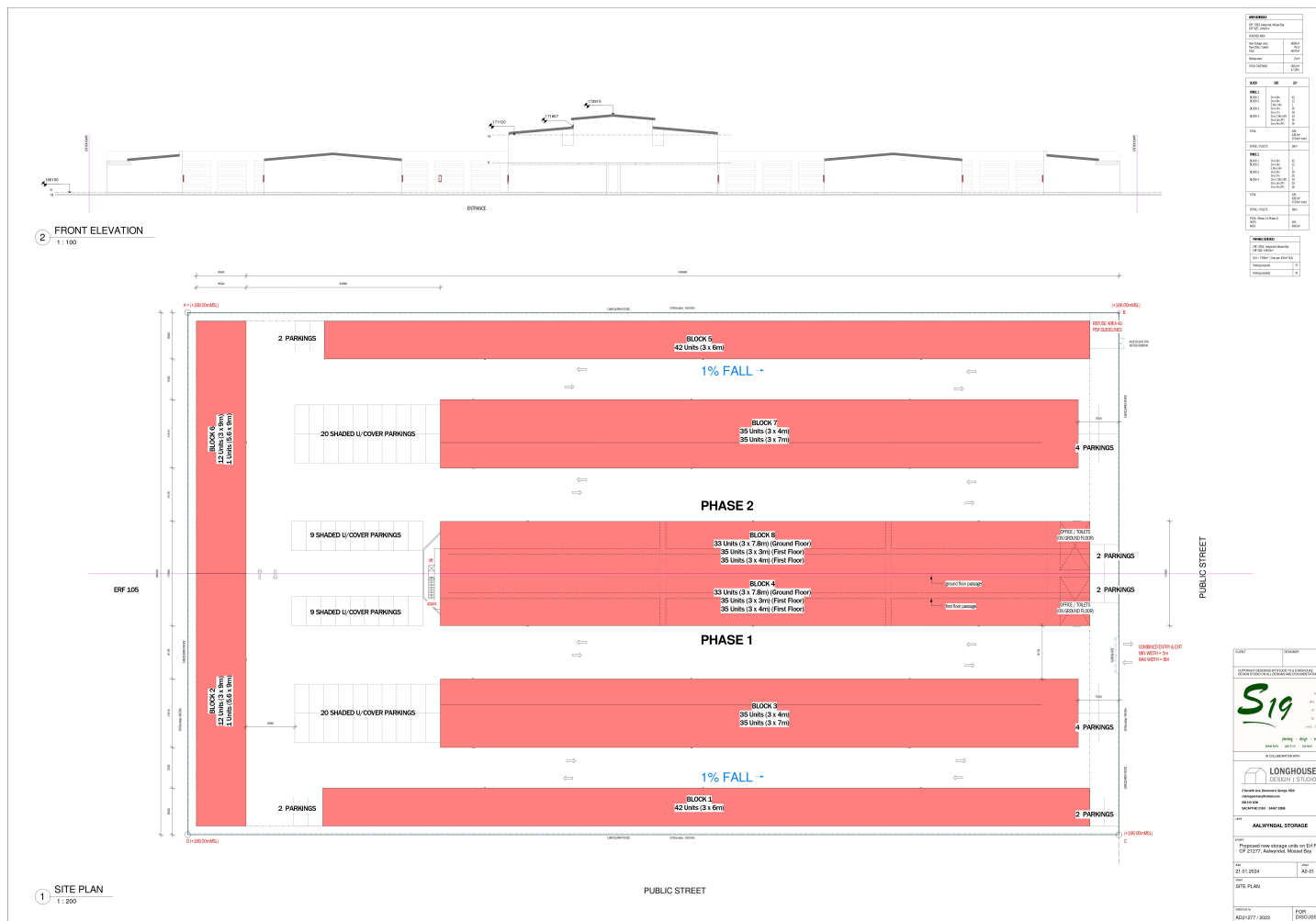


FIGURE 4: PROPOSED SITE DEVELOPMENT PLAN

The development will also include access roadways, stormwater run-off drainage and perimeter security fencing, lighting, and access control. Additionally, the proposed development will also consist of private internal access roads and civil infrastructure utilizing a Conservancy Tank System.

The entrance and exit to the proposed development are located on Nagtegaal Street as indicated on the site plan. Parking bays have been positioned along the southeastern and northwestern boundary of the site to set the buildings back from the road interface and minimise visual intrusion.

The development will also include access roadways, stormwater run-off drainage and perimeter security fencing and lighting and access control.

Services such as water, electricity and sewerage disposal is very limited due to the nature of the development proposal. On site there will be self-storage units that does not require any further supply of water, electricity, or waste disposal, as well as a single administrative building which will require limited service approvals. Therefore, a conservancy is proposed for the toilet facility of the administrative building, which will be serviced by a private contractor as the need occurs and a water connection is already available for the basins and the toilet. Furthermore, electricity connections are also readily available.

4. HERITAGE

A Notification of Intent to Develop was submitted to the Heritage Western Cape on 24 May 2021. The Heritage Western Cape subsequently issued a positive Record of Decision dated 19 December 2022 with Ref: HM / EDEN / MOSSEL BAY / ERF 21277, indicating that the proposed development may proceed and that no further Heritage related studies are required.

Jayson Orton, from ASHA Consulting (Pty) Ltd, conducted a Heritage Impact Assessment on 31 October 2022, HWC Case No.: 21051106SB0525E, together with his study a Palaeontological Impact Assessment and Visual Impact Assessment was conducted and brought to his attention. The following was obtained after numerous heritage resources and archaeological components were consulted. Based on his findings palaeontological and archaeological resources were anticipated but the desktop palaeontological study suggested that no significant fossils were likely to occur and the field survey revealed no archaeological materials. The landscape is considered to be a heritage resource but, in this case, it is a recently subdivided and only minimally developed rural smallholding area with no historical character.

The only potentially significant impact identified is the visual intrusion of the site that a relatively high-density development would have within a low-density rural context. This was assessed as a medium significance impact but with mitigation (landscape plan with screening vegetation) this can be reduced to low significance.

Below is a summary of the palaeontological and visual impact that the proposed development might have in a heritage perspective.

Palaeontological Impact Assessment:

Since the site is predominantly underlain with the Skurweberg Formation bedrock a Palaeontological Impact Assessment was considered and obtained the following result.

The subsurface of the proposed site is considered to be weathered consisting of soil, and possibly grey windblown cover sands in the majority of the proposed development site's places. This was a concerning factor regarding the construction of the foundation for the proposed activity. The study concluded that the impact construction will have on the Skurweberg Formation will be limited.

The trenches for foundations for the buildings are expected to be conventional and 0.6 to 0.8 m in depth. The post holes for fencing are expected to be of similar depth, while footings for tall lamp poles are larger and deeper. The deepest excavations are for the septic tanks and are not expected to exceed ~2 m depth.

Additionally, the fossil content of the Silurian Skurweberg formation, fluvial braid-plain sandstone is sparse. Trace fossils are recorded from the finer-grained, muddier beds attributed to shallow marine or estuary settings.

Consequently, the sudden uncovering of fossils are highly unlikely as well as the disruption of the bedrock within the proposed development site.

As a result, the author of the assessment concluded that Impacts on fossil heritage resources due to disturbance of the soil profile formed on the weathered Skurweberg Formation underlying the Erf 21277 Project Area are not anticipated. They recommend however, in case of the unexpected uncovering of fossil bones in the surficial cover sands and soil, or buried archaeological material, or unmarked graves, it is recommended that a protocol for finds of potential fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project, basically "If fossil material is uncovered during excavations for foundations and other installations, stop work at that spot and report to Heritage Western Cape".

Visual Impact Assessment:

From the Assessment the author highlighted that visual framework presents a mix of developed and undeveloped properties with areas of natural vegetation interspersed with grazing fields and a mix of exotic and indigenous vegetation planted near dwellings and along fence lines. Although Aalwyndal has a sense of rural charm it does not present a distinctive scenic or cultural sense of place that must be protected and scenic, cultural and historical significance of the area is rated as low. The topography of the area furthermore serves to

visually isolate Aalwyndal and partially screen views towards the proposed new developments planned for Erf 21277, Mossel Bay, from surrounding developments and scenic routes.

Residents and receptors related to the holiday and tourist industry are rated as highly sensitive and tourism is one of the major economic drivers of the Southern Cape. Although there is some tourist activity in Aalwyndal associated with the Mossel Bay Airfield and Guest Houses and farm accommodation offered, this is not one of the major areas of Mossel Bay associated with the tourist trade. New developments could be partially visible from the N2 view corridor, which has been identified as an important scenic tourist route, but this is at a distance of more than 2 km from the proposed development site at which new developments would not be clearly noticeable to receptors and potential visual impact would be low provided appropriate mitigation measures are put in place.

Although the visual absorption of the development site itself is low due to a lack of screening vegetation and relatively flat topography, the visual absorption capacity of the area is moderate to high due to the screening effect of existing structures and taller vegetation in the areas surrounding the development site. Changes will be brought about to the existing visual environment of Aalwyndal should the proposed development go ahead, but such changes could be absorbed within the existing visual character of the area.

Where potential visual impacts can be rated as moderate to high without mitigation, the significance of these impacts can be reduced to moderate to low if appropriate mitigation measures are put in place. In light of the above it is recommended that the proposed development be approved subject to the implementation of mitigation measures to soften the potential visual impacts to integrate the new developments with the existing character of Aalwyndal.

As a result, the proposed development will be noticeable to tourists and residents of Aalwyndal, particularly around Nagtegaal Street which is the main access route to the Mossel Bay Airfield. The proposed development could also potentially be partially visible to tourists and road users travelling on the N2 towards Mossel Bay.

They recommend the following mitigation measures to be implemented both during the construction and operational phase.

Construction phase mitigation measures

- Locate site camp and temporary structures within an appropriate area that is not visible from the most prominent views and routes frequented by residents and tourists in Aalwyndal.
- Building works on site must be screened with site hoarding constructed to a minimum height of 1800mm comprising a double layer of 80% shade netting, securely fixed to three horizontal 114 x 38mm treated timber members top, middle and bottom fixed to

114 x 114mm treated timber posts or poles at 3m centres set securely into ground to a minimum depth of 700mm and including all necessary corner posts, stays, etc. The contractor is to maintain all hoardings and keep clean and finally remove and make good on completion of the contract.

- Disturbance area and hoarding must be limited to the smallest area possible needed for construction.
- Existing screening vegetation to remain on site must be protected and fenced off from construction area.
- Temporary site lighting if required must be kept to a minimum and not be flood lighting wherever possible.
- The construction site must be kept clean and in a neat condition at all times during the construction period.
- Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works.

Design and Operational Phase mitigation measures

- Use visually permeable fencing rather than boundary walls, to visually integrate new developments with the existing rural landscape.
- Use vegetated buffers along site boundaries to screen new developments from scenic views and routes. Vegetation must attain a height of at least 5 - 9 meters at maturity to provide adequate screening. Although the natural vegetation in the Aalwyndal area is not rich in tall growing tree species hardy drought resistant indigenous trees that can withstand coastal conditions such as *Brachyleana discolor*, *Searsia crenata* and *Buddleja saligna* can be closely planted to form tall hedges that will screen new developments. Non-invasive, evergreen, tall growing exotic trees that complement the existing landscape typology can also be considered.
- Maintain new tree and shrub planting until it is self-sufficient.
- Buildings and roadways must be positioned along contours to limit cut and fill operations wherever possible.
- Rehabilitate all cut and fill areas around new developments directly after construction to minimize visual intrusion.
- Reduce massing of built form by making use of setbacks from the boundary along the street and side boundaries. Setback area will provide space for vegetated buffers to reduce visual intrusion from prominent view corridors. Step building mass down towards roadway and side boundary so that the largest storage units are not located on the street and side boundary with the adjacent Erf 21276.
- Use finishes and colour on external building envelope that will merge with the surrounding landscape and recede from view from a distance.
- Reflective surfaces must be kept to a minimum and shaded with roof overhangs and / or screens to limit glare. Use mat finish paint on external surfaces.

Lighting design must conform to the following:

- Ensure lighting sources are top covered and directed only where needed ensuring that no light spillage occurs.
- Ensure that no open light sources are visible from beyond the site.
- Avoid flood lighting and spot lighting for security purposes.

5. THE PHYSICAL AND BIOLOGICAL ENVIRONMENT

5.1. BOTANICAL IMPACTS

A **Botanical Survey** of the site was undertaken on 26 December 2020 by Mark Berry, to determine the status of vegetation found on site and its biodiversity value.

Findings suggested that the current land use (grazing paddock for horses) on the proposed development site has led to the severely disturbed and degraded state of the site, leaving a minimum of viable fynbos plant species left in the area.

The proposed site portion on Erf 21277 is located on the Southern Cape Coastal Plateau. The site occurs in a typical fynbos environment which was confirmed by the presence of fynbos species, such as *Aspalathus opaca*, *Metalasia acuta* and several *Herichrysum* species. The fynbos present on the site show heavy disturbance by grazing and some alien infestation, notably *Acacia cyclops* (rooikrans) and *Cynodon dactylon*. Due to the disturbed nature of the site, typical fynbos species such as *Ericas* and *Proteas* were however absent from the site. These species were noted on nearby sites where relatively undisturbed fynbos were encountered.

According to the South African Vegetation Map, the vegetation occurring on site and the surrounding area has been mapped as North Langeberg Sandstone Fynbos. Mossel Bay Shale Renosterveld and Hartenbos Dune Thicket (along the coast) occur further away to the northeast and south. While the vegetation found on site can be described as fynbos, it also shows an affinity with Mossel Bay Shale Renosterveld with the presence of renosterveld species such as *Elytropappus rhinocerotis*, *Oedera genistifolia* and *Barleria pungens*. Structurally, it can be described as a dwarf (<0.25 m) closed shrubland following Campbell's (1981) classification. The vegetation is a bit higher in certain areas where the shrub component is less disturbed. *Cynodon dactylon* (kweek) and *Helichrysum niveum* are dominant ground covers. The fynbos shows heavy disturbance by grazing and some alien infestation, notably *Acacia cyclops* (rooikrans) and *Cynodon dactylon*.

Other Natural Areas have the greatest flexibility in terms of permissible land uses. ONA is defined as: "Areas not currently identified as a priority but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem."

Although ONAs are not prioritised, they are still an important part of the natural ecosystem. Thus, the objectives of ONA are to : "Minimize habitat and species loss and ensure ecosystem

functionality through strategic landscape planning. Offers flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.”

Many indigenous shrub species were found during the site visit, three Species of Conservation Concern were recorded on site, namely *Hermannia lavandulifolia* (Vul), *Polygala pubiflora* (Vul) and *Ruellia pilosa* (Vul), with the addition of *Euphorbia procumbens* which has recently been dwindling in number. According to the online Red List 2 of South African Plants, they are all under threat from crop cultivation, coastal developments and alien infestation. *Polygala pubiflora* is a regional endemic, mostly found in renosterveld remnants. It is still frequently encountered (by the author and others) in the Mossel Bay area, but never in large numbers. It is difficult to spot when not in flower. *Hermannia lavandulifolia* is still well represented in the Mossel Bay area and is frequently encountered. A large number (50-100 plants) of *Euphorbia procumbens* were also recorded, mainly along the southern boundary of the site. Despite being widespread between Riversdale and the Eastern Cape and not listed as threatened, its numbers are very low, with only a few records along the Garden Route.

It is recommended that (if development is allowed to proceed) these plants (*Hermannia lavandulifolia* (Vul), *Polygala pubiflora* (Vul) and *Ruellia pilosa* (Vul), and *Euphorbia procumbens* be searched and rescued and replanted in a suitable area nearby where it can be protected into perpetuity.



FIGURE 5: LOCATION OF THE SPECIES OF CONSERVATION CONCERN ON THE PROPOSED DEVELOPMENT SITE.

Therefore, on a concluding note, given the disturbed state of the site, the impact on vegetation type per se is of low to moderate concern. The impact will be slightly more for the encountered Species of Conservation Concern, which are mostly still well represented in the larger Mossel Bay area. As a mitigation measure (if development is allowed to proceed), consideration

should be given to the search and rescue of *Euphorbia procumbens* of which there are between 50 and 100 plants on site.

It is recommended that should development proceed these plants be searched, rescued and replanted in a suitable area nearby where it can be protected into perpetuity.

Mark Berry has subsequently compiled a detailed Search and Rescue Plan, dated February 2024, outlining the following requirements;

- Plant species considered suitable for search and rescue include certain succulents and geophytes. *Carpobrotus cf. deliciosus*, *Acrodon bellidiflorus*, *Adromischus caryophyllaceus*, *Crassula cultrate*, *Euphorbia procumbens*, *Hypoxis villosa*, *Ledebouria revoluta*, *Ornithogalum dubium*, *Ornithogalum juncifolium*, and *Satyrium membranaceum*.
- A large number (50-100 plants) of *Euphorbia procumbens* were recorded, mainly along the southern boundary of the site. An effort should be made to salvage as many as possible of these. *Carpobrotus cf. deliciosus* can be partly or wholly removed for replanting purposes.
- With regards to the S&R of bulb species, the best time for removal is during leaf fall ('blaarval'). In other words, toward the end of the growth period, but before or after the flowering.
- For most flowering bulb species in the Western Cape, this will be towards the end of the winter season (maybe early spring for the Southern Cape).
- The bulbs should then be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.
- The best time for planting is during the rainy seasons (March & October). A development area 3.2 km northeast of the site has been identified as a suitable planting (receiving) area for the S&R material.



FIGURE 6: PROPOSED PLANTING AREA FOR SEARCH AND RESCUED MATERIAL

Critical Biodiversity Areas (CBAs)

The site does not form part of the Mossel Bay CBA network. It is located between two aquatic ecological support areas (drainage lines), with a large critical biodiversity area (CBA) located further away to the west. CBAs are defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These sites are selected for meeting national targets for species, habitats and ecological processes. Many of these areas support known occurrences of threatened plant species, and/or may be essential elements of designated ecological corridors. Loss of designated CBAs is therefore not recommended. The project will not impact significantly on the biodiversity network as currently presented.

5.2. ANIMAL SPECIES IMPACTS

The animal species identified by the Screening tool are as follows: □

- *Circus maurus* – Black Harrier
- *Neotis denhami* – Denham's bustard
- *Circus ranivorus*- African marsh harrier
- *Aneuryphymus montanus* -Yellow-winged Agile Grasshopper
- *Lepidochrysops littoralis*- Coastal Blue Butterfly

- *Bradypterus sylvaticus* – Knysna warbler
- *Camphetera notata* – Knysna woodpecker

Neotis denhami generally occupies cultivated pastures, agricultural croplands and natural vegetation, but has a wide fragmented Afrotropical range, which does not place a limitation on the specific location of their habitat. *Circus ranivorus* occupy marsh and wetland habitats. *Aneurypthymus montanus* is a vulnerable species on SANBI's list and the main threats to this species are conversion of its habitat into farmland and invasions of non-native plant species. *Lepidochrysops littoralis* generally occur in rocky limestone ridges or sand dunes in coastal fynbos and has a limited distribution, as a result, *L. littoralis* is qualified globally under the IUCN criteria as Endangered under criterion B. Even though *Bradypterus sylvaticus* is classified as a vulnerable species, they have a rather sparse distribution and since the site of proposed development is rather disturbed, such population patterns will not be severely impacted.

Based on the species descriptions on SANBI's website, the majority of these animal species are mobile, and make use of marsh, coastal and wetland area, which habitat is not immediate on the proposed development site, and thus they are unlikely to be disturbed by the proposed development as they can move away from the disturbance into the surrounding agricultural and natural areas.

During the site visit, it was observed that none of the eight Species of Conservation Concern (SCC) identified in the screening tool report were present. The vegetation around the site is too disturbed and close to human habitation for more sensitive species like *C. maurus*, *C. ranivorus*, and *N. denhami* to be found there. *C. maurus* and *N. denhami* might exist in similar but less disturbed areas further west of the site, whereas *C. ranivorus* would require a nearby wetland, which is absent.

A. montanus is highly unlikely to be present at the site due to its preference for arid fynbos vegetation on rocky substrates, which contrasts with the vegetation structure at the site. Furthermore, the nearest sighting of this species is over 90 km away. *L. littoralis*, another insect SCC, is also improbable to be found at the site because its typical habitats are limestone outcrops or coastal fynbos, neither of which are present at this location.

Sensitive Species 5 is not expected to be at the site, as it is restricted to specific reserves in the Western Cape where it has been reintroduced, and the study site does not offer enough prey to sustain this species.

Similarly, *B. sylvaticus* and *C. notata*, both bird species, are unlikely to be found at the study site due to the sparse vegetation cover, especially of large shrubs and trees, which these species require.

The site visit recorded a total of 25 animal species, including seven bird, 15 insect, two mammal, and one reptile species. None of these species are of conservation concern, but

noteworthy sightings included the Spotted veld antlion, Amethyst small fruit chafer, and a Parrot-beaked tortoise.

Please refer to the extract from the Animal Specialist Report that summarizes the sensitivity of each SCC identified by the screening tool.

Common name	Threat Status		Habitat requirements	Likelihood of occurrence
	International	National		
Black harrier <i>Circus maurus</i>	Endangered	Endangered	Fynbos, grasslands, and other similar open vegetation. Also utilises agricultural fields.	Very low There is no suitable habitat of sufficient size at the study site to support this species.
	Decreasing (251 – 999 mature individuals)	Decreasing (85% in past 100 years; < 1000 mature individuals)		
Denham's bustard <i>Neotis denhami</i>	Near-threatened	Vulnerable	Grassland, lowland fynbos, and cultivated fields.	Very low There is no suitable habitat of sufficient size at the study site to support this species, and the study site is located close to human habitation.
	Decreasing	Decreasing (<5 000 adult individuals)		
African marsh-harrier <i>Circus ranivorus</i>	Least Concern	Endangered	Estuaries and large wetlands with sufficient reedbeds for food and breeding	Very low There is no suitable habitat of sufficient size at the study site to support this species.
	Decreasing	Decreasing (<2 500 adult individuals)		
Yellow-winged agile grasshopper <i>Aneuryphymus montanus</i>	Vulnerable	Vulnerable	Dry, sclerophyllous fynbos in rocky foothills.	Very low Not known from the area, and no suitable habitat present at the study site.
	Unknown population trend	Likely declining No population estimates, and rarely collected.		

Coastal blue butterfly <i>Lepidochrysops littoralis</i>	Endangered	Endangered	Rocky limestone ridges or sand dunes in coastal fynbos.	Low Not known from the study site; habitat likely not suitable.
	Unknown population trend	Decreasing (Known from 10 locations between Bredasdorp and Mossel Bay; no population estimate).		

Sensitive Species 5 (which cannot be disclosed)	Vulnerable	Vulnerable	Savanna and other open vegetation with sufficient food and few disturbances.	Very low This species does not occur outside fenced protected areas in the Western Cape. The nearest fenced population is 14 km from the study site.
	Decreasing	Stable (583 – 1 045 mature individuals estimated)		
Knysna warbler <i>Bradypterus sylvaticus</i>	Vulnerable	Vulnerable	Forest edges, riparian thickets and coastal thickets where <i>Sideroxylon inerme</i> is present. Also utilises thickets dominated by lantana and bramble.	Very low There is no suitable vegetation present at the study site to support this species, and surrounding vegetation is also not suitable for this species.
	Decreasing	Decreasing (<2 500 adult individuals)		

Knysna woodpecker <i>Campethera notata</i>	Near-threatened	Near-threatened	Forests and dense woodlands, including coastal forests and thickets.	Very low The study area does not support vegetation that is suitable for this species, as it is too sparse and lacks sufficient trees to support this species.
	Stable (1000 – 3300 individuals)	Declining (1 000 – 3 300 mature individuals estimated)		
		Likely declining No population estimates, and rarely collected.		

Due to the absence of all the SCC from the study site, the site sensitivity could be considered Low. Although the entire development footprint will be transformed, the remaining vegetation on the rest of the property will still be contributing as ecological corridors for the plants and animals in the area.

Mitigation Measures:

The proposed development will lead to the loss of habitat across the entire study site.

- To offset this impact, it is advised that the remaining portion of the property, especially towards the west, should be preserved as undisturbed as possible to serve as an ecological corridor. This corridor will aid in connecting fragmented habitats in the landscape.
- If any planting is done on the property, such as for windbreaks or ornamental gardens, it is recommended to use locally-indigenous plant species. These plants can provide food and shelter for local animal species.
- Instead of using rodenticides, especially anticoagulant rodenticides, for rodent control, it is discouraged. Instead, constructing and installing owl breeding boxes targeting species like the Barn owl or Spotted eagle-owl is recommended. These owl species are native to the Mossel Bay area and can effectively control rodent populations without the risks associated with rodenticides.
- Furthermore, planting locally indigenous plants along the property's edge is advised to facilitate the movement of small animals such as insects, birds, mammals, and reptiles. This inclusion of native plants would help mitigate the habitat loss caused by the development, especially in terms of allowing wildlife to move across the landscape.

5.3. AQUATIC IMPACTS

An Aquatic Biodiversity Compliance Statement was conducted, and the following statement is of consideration.

The Site Investigation confirmed the presence of a natural Channelled Valley-Bottom (CVB) Wetland Area associated with a Non-Perennial Drainage Line situated approximately 420 meters northeast of the proposed development footprint. No aquatic resources were discovered on the concerned portion of Erf 21277 directly. Additionally, a Depression Wetland associated with the Mossel Bay Aerodrome situated approximately 800 meters southwest of the concerned development footprint was also discovered as well as an artificial farm dam immediately east of Klipheuwel Weg in the headwaters of this Channelled Valley-Bottom Wetland system, with the origin and construction date of this artificial farm dam being unknown.

A Section 21(c) & (i) Risk Assessment Matrix as it pertains to the National Water Act, 1998 (Act No. 36 of 1998) was compiled related to the potential impacts of the development proposal on this Channelled Valley-Bottom (CVB) Wetland System. The proposed development will be located within 500 meters of this wetland system (within the regulated area) in accordance with General Notice 509 of 2016 for Section 21(c) and 21(i) Water Uses of the National Water Act, 1998 (Act 36 of 1998). Based on the outcome of the Section 21(c) & (i) Risk Assessment, the proposed activities associated with the construction and establishment of the proposed Mossel Bay Storage facility has been assessed to have a Low-Risk Significance (with mitigation) on the watercourse identified.

The author is also of the opinion that the legislative requirement for the proposed storage and solar development on a portion of Erf 21277 in Aalwyndal to register a GA (General Authorisation) in terms of the National Water Act, 1996 (Act No. 36 of 1998) for Section 21 (c) & (i) water use activities, with the BreedeOlifants Catchment Management Agency (BOCMA) could potentially be waived given the associated Low Risk Significance of anticipated impacts together with the significant distance (>400m) of the concerned property to the identified water resource.

The potential waiving of the requirement to register a GA should, however, be supported and confirmed by the Breede-Olifants Catchment Management Agency.

According to Rudzani Makahane from BOCMA, sent via email in correspondence to the revised Aquatic Assessment Report, the following confirmation pertaining to the above has been obtained, "Your request has been granted and the GA is therefore not required."

The proposed structures/infrastructure was assessed to have minimal impact on this wetland system given the location of the development proposal in relation to this aquatic system (>400 meters), the relatively small scale of the development, the fact that, although limiting, will still allow for free movement of water and sediments through this system and the Present Ecological State of this wetland system which was assessed to be Largely Modified (PES Category D) as a result of historical anthropogenic factors. Therefore, the proposed development will not have an impact on any surface or groundwater aquatic resources and mitigation measures have been suggested to limit any factors that might have an impact on the Channelled Valley-Bottom (CVB) Wetland System.

Ideally the proposed mitigation measures should be implemented successfully to ensure that no aquatic ecosystem, natural or artificial be disturbed, damaged, or polluted in any form

during the construction and operational phases, and that no watercourse be contaminated, or excess sediment be distributed into said aquatic system.

Mitigation:

Development Management

- Contractor laydown areas are to be established outside of the 500-metre Regulatory Zone of the wetland system and only for a short duration in consultation with the competent authority.
- All development footprint areas to remain as small as feasibly possible and vegetation clearing to be limited to what is absolutely essential to complete the required works.
- Construction Activities should preferably be undertaken during the drier summer months, to minimise the impact on the Hydrological & Geomorphological Functioning of the wetland system.
- All construction debris and litter must be removed. It may be temporarily stockpiled outside the extent of the 500-metre regulatory buffer zone but must be removed and disposed of at a licensed Processing Facility at regular intervals as specified in the legally binding Environmental Management Plan (EMP) approved by the Competent Authority.
- Care must be taken, and all construction personnel must receive training on the risks of chemical contamination of the wetland area.
- Chemical spills within and surrounding the 500-metre wetland regulatory buffer zone should be immediately remediated utilizing an Emergency Spill Response Procedure to form part of the legally binding Environmental Management Plan (EMP) approved by the Competent Authority.

Vehicular Access

- All construction vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent the ingress of hydrocarbons into the topsoil.
- In the event of a vehicle breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practised near the surface area to prevent the ingress of hydrocarbons into the topsoil.
- All spills should they occur, should be immediately cleaned up and treated accordingly.

Soil

- Sheet runoff from excavations and stockpiles should be slowed down by the strategic placement of silt traps in accordance with the legally binding Environmental Management Plan (EMP).
- As far as feasibly possible, all construction activities should occur during the dry summer months (December – February).
- All stockpiles are to be protected with a suitable geotextile to prevent sedimentation.

5.4. VISUAL IMPACTS

The Visual Impact Assessment considered a series of visual components that might suggest an effect that the proposed development might have on the surrounding environment. The assessment concluded that although Aalwyndal has a sense of rural charm it does not present a distinctive scenic or cultural sense of place that must be protected and the scenic, cultural and historical significance of the area is rated as low. The topography of Aalwyndal also lends a visually isolated Aalwyndal and partially screen views towards the proposed site from the surrounding scenic route other than the N2.

Tourism is considered an important factor to consider since the majority of the Mossel Bay area is dependent on tourism for economic stability and growth, Aalwyndal is not a major area associated with tourism other than the Mossel Bay Airfield and Guest Houses and farm accommodation offered in the area. The development could be partially visible from the N2 view corridor, which has been identified as an important scenic tourist route, but this is at a distance of more than 2 km from the proposed development site at which new developments would not be noticeable to receptors and potential visual impact would be low provided appropriate mitigation measures are put in place.

They also stated that although the visual absorption of the development site itself is low due to a lack of screening vegetation and relatively flat topography, the visual absorption capacity of the area is moderate to high due to the screening effect of existing structures and taller vegetation in the areas surrounding the development site. Mitigation measures are also suggested and can be read below to ensure that the building structures fall within the considered aesthetic views of the surrounding area.

Therefore, the only visual impact that should be highly considered is that of visual intrusion, allowing the integration of new developments into the existing character of Aalwyndal.

Mitigation:

Construction phase mitigation measures

- Locate site camps and temporary structures within an appropriate area that is not visible from the most prominent views and routes frequented by residents and tourists in Aalwyndal.
- Building works on site must be screened with site hoarding constructed to a minimum height of 1800mm comprising a double layer of 80% shade netting, securely fixed to three horizontal 114 x 38mm treated timber members top, middle and bottom fixed to 114 x 114mm treated timber posts or poles at 3m centres set securely into the ground to a minimum depth of 700mm and including all necessary corner posts, stays, etc. The contractor is to maintain all hoardings and keep clean and finally remove and make good on the completion of the contract.
- Disturbance area and hoarding must be limited to the smallest area possible needed for construction.
- Existing screening vegetation to remain on site must be protected and fenced off from construction area.

- Temporary site lighting if required must be kept to a minimum and not be flood lighting wherever possible.
- The construction site must be kept clean and in a neat condition at all times during the construction period.
- Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works.

Design and Operational Phase mitigation measures

- Use visually permeable fencing rather than boundary walls, to visually integrate new developments with the existing rural landscape.
- Use vegetated buffers along site boundaries to screen new developments from scenic views and routes. Vegetation must attain a height of at least 5 - 9 meters at maturity to provide adequate screening. Although the natural vegetation in the Aalwyndal area is not rich in tall growing tree species hardy drought resistant indigenous trees that can withstand coastal conditions such as *Brachyleana discolor*, *Searsia crenata* and *Buddleja saligna* can be closely planted to form tall hedges that will screen new developments. Non-invasive, evergreen, tall growing exotic trees that complement the existing landscape typology can also be considered.
- Maintain new tree and shrub planting until it is self-sufficient.
- Buildings and roadways must be positioned along contours to limit cut and fill operations wherever possible.
- Rehabilitate all cut and fill areas around new developments directly after construction to minimize visual intrusion.
- Reduce massing of built form by making use of setbacks from the boundary along the street and side boundaries. Setback area will provide space for vegetated buffers to reduce visual intrusion from prominent view corridors. Step building mass down towards roadway and side boundary so that the largest storage units are not located on the street and side boundary with the adjacent Erf 21276.
- Use finishes and colour on external building envelope that will merge with the surrounding landscape and recede from view from a distance.
- Reflective surfaces must be kept to a minimum and shaded with roof overhangs and / or screens to limit glare. Use mat finish paint on external surfaces.

Lighting design must conform to the following:

- Ensure lighting sources are top covered and directed only where needed ensuring that no light spillage occurs.
- Ensure that no open light sources are visible from beyond the site.
- Avoid flood lighting and spot lighting for security purposes.

5.5. AGRICULTURAL IMPACTS

Digital Soils Africa drafted an Agricultural Compliance Statement in February 2024, and the following information was received.

The National Web-based Environmental Screening Tool classifies the agricultural sensitivity of the site as a medium, while the land capability, according to DAFF (2017), also falls under a medium classification, with no cultivated crops present on the site as indicated by the screening tool.

According to the Department of Agriculture, Forestry and Fisheries (DAFF, 2017), the climate capability of the study area is rated as 5, indicating moderate climate capability. The study area falls within the Db land type, characterised by duplex soils, where sandy topsoil abruptly overlies more clayey subsoil, making up over 50% of the land type, with less than 50% of the duplex soils containing non-red B horizons. The soil capability is rated as 4, indicating low to moderate capability, while the terrain capability is rated between 6 and 7, representing moderate to high capability. Land capability values range from 7 (low to moderate) to 8 (moderate), placing the site on the boundary between arable and non-arable land. The desktop assessment aligns with the screening tool's classification of medium agricultural sensitivity. **Given the small development footprint and its minimal impact on current agricultural activities, the specialist recommends that the development proceed.**

5.6. AVIATION IMPACTS

The DEFF Screening Tool Report notes that the site is located within 8 km of other civil aviation aerodrome (approximately 1km), between 15 and 35 km from a civil aviation radar and between 15 and 35 km from a major civil aviation aerodrome. These features have been considered as high aviation sensitivities. The proposed site is located within 1 kilometre from the Mossel Bay Aerodrome.

This area has been earmarked for intensified urban development that will include plans to enlarge the present Mossel Bay Airfield. Erf 21277, Mossel Bay, is situated within the area where noise levels are considered unsuitable for residential purposes and has been identified as suitable for commercial development (light industry), including services related to the Airfield such as storage.

However, the EAP disputes this finding and recommends a Medium sensitivity without substantiating with relevant evidence, apart from indicating that comment will be obtained from the South African Civil Aviation Authority ("CAA"). Notwithstanding the above, both the Medium and High sensitivity ratings require the compilation of a compliance statement.

An Aviation Impact Assessment was conducted by Tappas Aviation Consultant in January 2024, discussing the potential of the proposed development to interfere with the Obstacle Limited Surfaces of airports in the vicinity of the project area or to interfere with any other aviation promulgated areas surrounding the development footprint.

The following findings were generated;

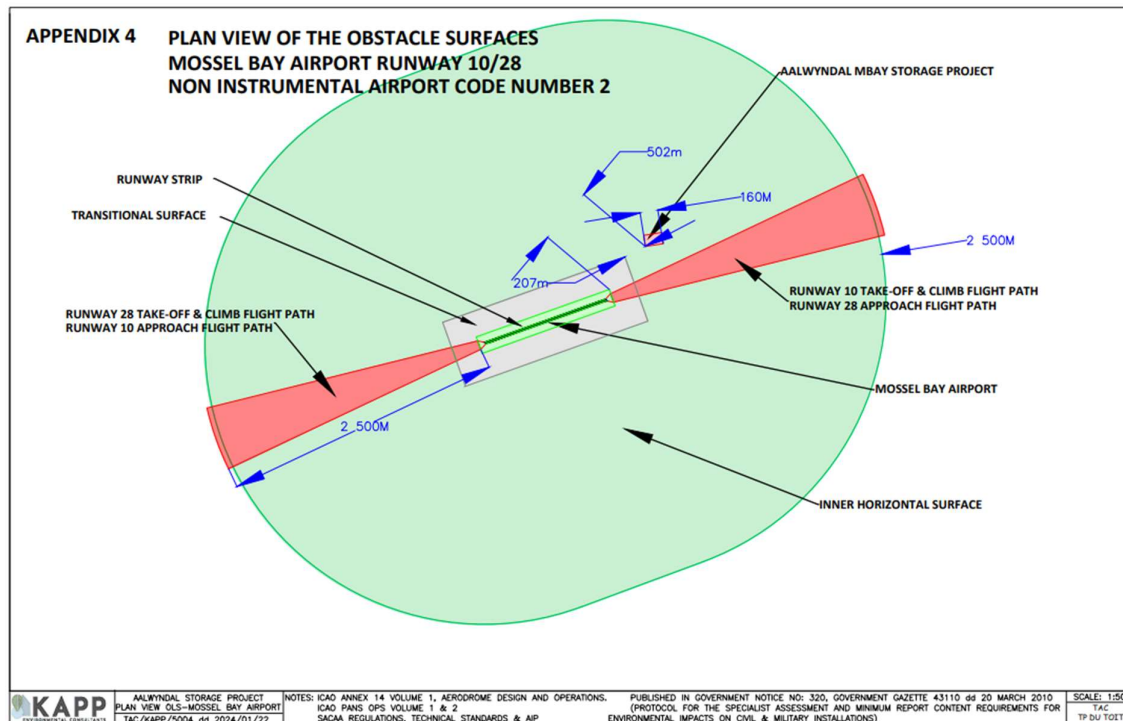


FIGURE 7: TECHNICAL DRAWING TAC/KAPP/5004 DD 2024/01/22 WAS DRAWN TO DETERMINE IF THE MBAY STORAGE PROJECT INTERFERES WITH THE NON-INSTRUMENTAL APPROACH OBSTACLE LIMITED SURFACES AND APPROACH AND TAKE-OFF FLIGHT PATHS SURFACES OF THE RUNWAY OF MOSSEL BAY AIRPORT

The proposed development is located inside the Mossel Bay Airport's Obstacle Limited Surfaces but outside the Runway Strip and Take-Off & Climb and Approach Flight Paths. It is thus not necessary to do any assessments regarding the Take-Off & Climb and Approach Flight Paths, but it is necessary to initiate an assessment for Mossel Bay Airport's Obstacle Limited Surfaces.

From the Figure 7 it can be confirmed that the proposed development Powerline is located 502 metres from the start of the Runway Strip and 207 metres from the Outer Horizontal Surface. The total length of the proposed development is 160 metres.

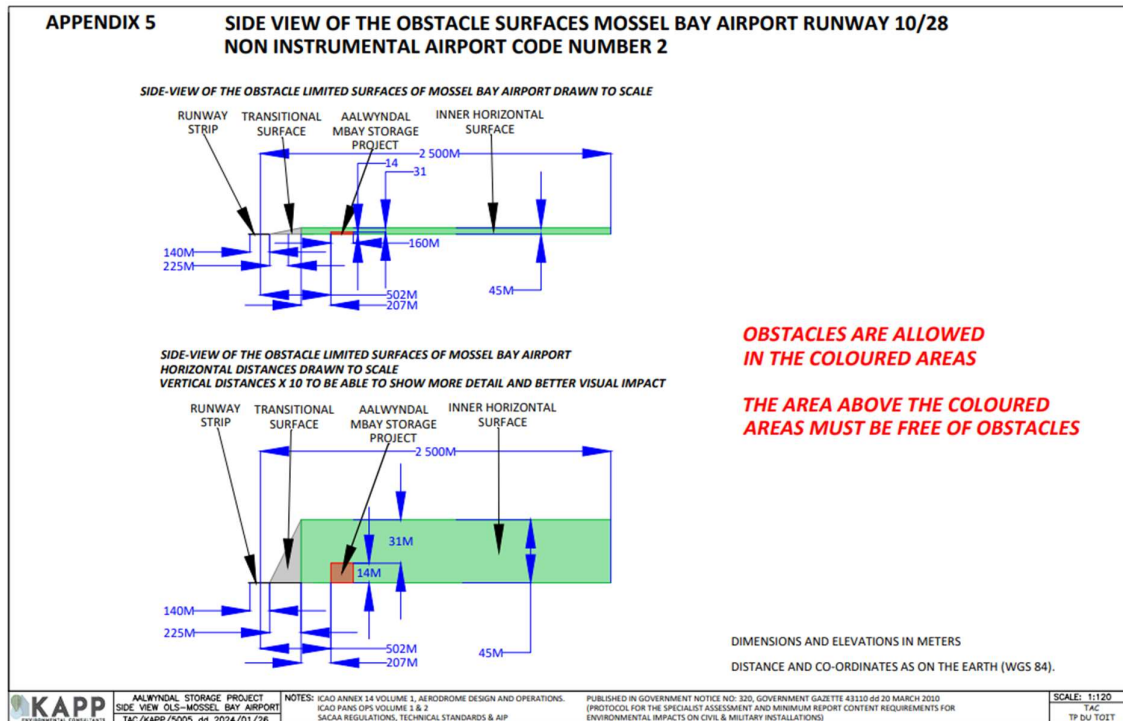


FIGURE 8: TECHNICAL DRAWING TAC/KAPP/5005 DD 2024/01/26, APPENDIX 5, WAS DRAWN TO DETERMINE IF THE PROPOSED DEVELOPMENT WILL INTERFERE WITH THE INNER HORIZONTAL SURFACE OF THE MOSSEL BAY AIRPORT'S OBSTACLE LIMITED SURFACES.

From Figure 8 it can be confirmed that the proposed development will not interfere with the Inner Horizontal Surface of the Mossel Bay Airport's Obstacle Limited Surfaces. The height of the proposed development is 14 meters, from the drawing it confirms that the proposed development is therefore 31 meters below the start of the Inner Horizontal Surface, which is 45 meters above the airport elevation.

6. CUMULATIVE IMPACT ASSESSMENT

During the site visit, several indigenous shrub species were observed, including three Species of Conservation Concern (SCC): *Hermannia lavandulifolia*, *Polygala pubiflora*, and *Ruellia pilosa*, all listed as vulnerable (Vul). *Euphorbia procumbens* was also recorded, with its numbers dwindling despite being widespread. These species are threatened by crop cultivation, coastal developments, and alien infestations.

Polygala pubiflora, a regional endemic, is frequently found in the Mossel Bay area, though in small numbers and is difficult to spot when not in flower. *Hermannia lavandulifolia* is well represented in the area, and a significant number of *Euphorbia procumbens* were observed along the southern boundary. Although widespread, *Euphorbia procumbens* has very low recorded numbers along the Garden Route.

Recommendations include searching, rescuing, and replanting these species if the development proceeds. Despite the site's disturbed condition, the impact on vegetation is of

low to moderate concern, with minimal effects on the SCC, as they are well represented in the broader Mossel Bay area.

A total of 25 animal species were recorded, including birds, insects, mammals, and reptiles, none of which are of conservation concern. Noteworthy sightings included the Spotted veld antlion, Amethyst small fruit chafer, and a Parrot-beaked tortoise. The site's sensitivity is considered low, and the remaining vegetation could serve as ecological corridors.

The proposed development is located more than 400 meters from a wetland system, which has been largely modified due to historical factors. The small scale of the development and its position will have minimal impact on the wetland system, with suggested mitigation measures to address any potential effects.

The Visual Impact Assessment found that while Aalwyndal has a rural charm, its scenic or cultural significance is low. The development might be partially visible from the N2, but appropriate mitigation measures would reduce the impact. The area surrounding the site has a moderate to high visual absorption capacity due to existing structures and vegetation.

The study area's agricultural capability is low to moderate, with minimal impact expected on current activities, allowing the development to proceed. The proposed development is within Mossel Bay Airport's Obstacle Limited Surfaces but will not interfere with key flight paths, and the height of the development will remain well below airport limits.

7. AVAILABLE SERVICES

Services such as water, electricity and sewerage disposal is very limited due to the nature of the development proposal. On site, there will be self-storage units that do not require any further supply of water, electricity, or waste disposal, as well as a single administrative building which will require limited-service approvals. Therefore, a conservancy is proposed for the toilet facility of the administrative building, which will be serviced by a private contractor as the need occurs and a water connection is already available for the basins and the toilet. Furthermore, electricity connections are also readily available.

8. ENVIRONMENTAL IMPACT STATEMENT

Based on this Environmental Impact Assessment for the proposed Storage Facility, the following is concluded:

An application has been filed for the establishment of a storage facility on Portion A of Erf 21277 in Aalwyndal, Mossel Bay. The proposed development site is situated in the Aalwyndal area, west of Voorbaai. Aalwyndal is recognized for its smallholdings, each approximately 7.7 hectares in size, and is presently zoned as Single Residential Zone I. Currently Erf 21277 is used as a horse paddock and for grazing with surrounding erven functioning in agricultural and residential pursuits. The agricultural land is essentially not affected by this land use

application as Portion A is already zoned Single Residential Zone I and situated well within the urban edge.

The total extent of Erf 21277, Aalwyndal, Mossel Bay, is approximately 7.7 hectares in extent and is situated along Nagtegaal Street. The property is currently zoned Single Residential Zone 1 and will be subdivided as part of the application. The development is proposed on Portion A which comprises 1.44ha along Nagtegaal Street and will be rezoned from Single Residential Zone 1 to Industrial Zone 1 (light industry) in line with the Spatial Development Framework for the Aalwyndal precinct to accommodate the proposed self-storage facility. The development herewith applied for on Portion A includes the following components and has been proposed to be developed in two phases:

Phase 1 of the development will entail the development of 228 small self-storage units allocated in four separate blocks with varying building dimensions and unit sizes.

Block 1: Comprising of 42 storage units (3m x 6m).

Block 2: Comprising of 12 storage units (3m x 9m) as well as 1 storage units (5.6m x 9m).

Block 3: Comprising of 35 storage units (3m x 4m) as well as 35 storage units (3m x 7m), thus 70 units in total.

Block 4: Comprising of 33 storage units of (3m x 7.8m); 35 storage units of (3m x 3m); as well as 35 storage units of (3m x 4m).

The total development footprint of phase 1 is proposed to be approximately 4281m². Additionally, an office/toilet structure will be developed comprising of a 38m² footprint.

Phase 2 of the development will entail the development of another 228 small self-storage units allocated in four separate blocks with building dimensions and unit sizes.

Block 5: Comprising of 42 storage units (3m x 6m).

Block 6: Comprising of 12 storage units (3m x 9m) as well as 1 storage units (5.6m x 9m).

Block 7: Comprising of 35 storage units (3m x 4m) as well as 35 storage units (3m x 7m), thus 70 units in total.

Block 8: Comprising of 33 storage units of (3m x 7.8m); 35 storage units of (3m x 3m); as well as 35 storage units of (3m x 4m).

The total development footprint of phase 2 is proposed to be approximately 4281m². Additionally, an office/toilet structure will be developed comprising of a 38m² footprint.

In total, the proposed development will consist of 456 small self-storage units and a development area of 8562 m².

It is proposed that the administration office and toilet facility will be connected to a conservancy tank and the existing water line along Nagtegaal Street will supply the required potable water.

Furthermore, as per the Preferred Site Development Plan (AD21277/2023 dated 21 January 2024) 75 parking bays are required and 76 shaded parking bays have been provided for. One parking bay will be distributed and constructed per 100 m² of self-storage units.

The development will also include access roadways, stormwater run-off drainage and perimeter security fencing, lighting, and access control. Additionally, the proposed development will also consist of private internal access roads and civil infrastructure utilizing a Conservancy Tank System.

The entrance and exit to the proposed development are located on Nagtegaal Street as indicated on the site plan. Parking bays have been positioned along the southeastern and northwestern boundary of the site to set the buildings back from the road interface and minimise visual intrusion.

The development will also include access roadways, stormwater run-off drainage and perimeter security fencing and lighting and access control.

The need for water, electricity and sewerage disposal is very limited due to the nature of the development proposal. A conservancy tank is proposed for the toilet facility of the administrative office building, to be serviced by a private contractor as the need occurs. A water connection is available for the basins and the toilet. Electricity connections are also readily available.

From a botanical perspective, the site occurs in a typical coastal fynbos environment. This is confirmed by the presence of fynbos species, such as *Aspalathus opaca*, *Metalasia acuta* and several *Herichrysum* species. According to the South African Vegetation Map, the vegetation occurring on site and the surrounding area has been mapped as North Langeberg Sandstone Fynbos. Mossel Bay Shale Renosterveld and Hartenbos Dune Thicket (along the coast) occur further away to the northeast and south.

While the vegetation found on site can be described as fynbos, it also shows an affinity with Mossel Bay Shale Renosterveld with the presence of renosterveld species such as *Elytropappus rhinocerotis*, *Oedera genistifolia* and *Barleria pungens*. Structurally, it can be described as a dwarf (<0.25 m) closed shrubland following Campbell's (1981) classification. The vegetation is a bit higher in certain areas where the shrub component is less disturbed. *Cynodon dactylon* (kweek) and *Helichrysum niveum* are dominant ground covers. The fynbos shows heavy disturbance by grazing and some alien infestation, notably *Acacia cyclops* (rooikrans) and *Cynodon dactylon*.

Many Indigenous shrub species were found during the site visit, three Species of Conservation Concern were recorded on site, namely *Hermannia lavandulifolia* (Vul), *Polygala pubiflora* (Vul) and *Ruellia pilosa* (Vul). According to the online Red List 2 of South African Plants, they are all under threat from crop cultivation, coastal developments and alien infestation. *Polygala pubiflora* is a regional endemic, mostly found in renosterveld remnants. It is still frequently encountered (by the author and others) in the Mossel Bay area, but never in large numbers. It is difficult to spot when not in flower. *Hermannia lavandulifolia* is still well represented in the Mossel Bay area and is frequently encountered. A large number (50-100 plants) of *Euphorbia*

procumbens were also recorded, mainly along the southern boundary of the site. Despite being widespread between Riversdale and the Eastern Cape and not listed as threatened, its numbers are very low, with only a few records along the Garden Route.

The Botanical impact assessment indicated that the site has been severely disturbed and that the impacts from a Botanical perspective will be low. Given the disturbed state of the site, a **LOW TO MODERATE** impact on vegetation and conservation status is observed. The **impact will be slightly more** for the encountered Species of Conservation Concern, which are mostly still well represented in the larger Mossel Bay area.

It is recommended that should development proceed these plants be searched, rescued, and replanted in a suitable area (a rehabilitation area within the Renosterbos Estate has been identified for the proposed “offset” area) nearby where they can be protected into perpetuity.

Mark Berry has subsequently compiled a detailed Search and Rescue Plan, dated February 2024, outlining the following requirements;

- Plant species considered suitable for search and rescue include certain succulents and geophytes. *Carpobrotus cf deliciosus*, *Acrodon bellidiflorus*, *Adromischus caryophyllaceus*, *Crassula cultrate*, *Euphorbia procumbens*, *Hypoxis villosa*, *Ledebouria revoluta*, *Ornithogalum dubium*, *Ornithogalum juncifolium*, and *Satyrium membranaceum*.
- A large number (50-100 plants) of *Euphorbia procumbens* were recorded, mainly along the southern boundary of the site. An effort should be made to salvage as many as possible of these. *Carpobrotus cf deliciosus* can be partly or wholly removed for replanting purposes.
- With regards to the S&R of bulb species, the best time for removal is during leaf fall ('blaarval'). In other words, toward the end of the growth period, but before or after the flowering.
- For most flowering bulb species in the Western Cape, this will be towards the end of the winter season (maybe early spring for the Southern Cape).
- The bulbs should then be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.
- The best time for planting is during the rainy seasons (March & October). A development area 3.2 km northeast of the site has been identified as a suitable planting (receiving) area for the S&R material.

The Site Investigation confirmed the presence of a natural Channelled Valley-Bottom (CVB) Wetland Area associated with a Non-Perennial Drainage Line situated approximately 420 metres northeast of the proposed development footprint and a Depression Wetland associated with the Mossel Bay Aerodrome situated approximately 800 metres southwest of the concerned development footprint. **No aquatic resources were discovered on the concerned portion of Erf 21277 directly.**

A Section 21(c) & (i) Risk Assessment Matrix as it pertains to the National Water Act, 1998 (Act No. 36 of 1998) was compiled related to the potential impacts of the development proposal on this Channelled Valley-Bottom (CVB) Wetland System. The proposed development will be located within 500 metres of this wetland system (within the regulated area) in accordance with General Notice 509 of 2016 for Section 21(c) and 21(i) Water Uses of the National Water Act, 1998 (Act 36 of 1998). Based on the outcome of the Section 21(c) & (i) Risk Assessment, the proposed activities associated with the construction and establishment of the proposed Mossel Bay Storage facility have been assessed to have a **LOW-RISK SIGNIFICANCE (WITH MITIGATION)** on the water source identified.

The author is also of the opinion that the legislative requirement for the proposed storage and solar development on a portion of Erf 21277 in Aalwyndal to register a GA (General Authorisation) in terms of the National Water Act, 1996 (Act No. 36 of 1998) for Section 21 (c) & (i) water use activities, with the BreedeOlifants Catchment Management Agency (BOCMA) could potentially be waived given the associated Low Risk Significance of anticipated impacts together with the significant distance (>400m) of the concerned property to the identified water resource.

The potential waiving of the requirement to register a GA should, however, be supported and confirmed by the Breede-Olifants Catchment Management Agency.

According to Rudzani Makahane from BOCMA, sent via email in correspondence to the revised Aquatic Assessment Report, the following confirmation pertaining to the above has been obtained, "Your request has been granted and the GA is therefore not required."

A Terrestrial Animal Species Impact Assessment has been commissioned to ensure the protection of the identified animal species as contained in the Screening Tool. The following finding were made;

During the site visit, it was observed that none of the eight Species of Conservation Concern (SCC) identified in the screening tool report were present. The vegetation around the site is too disturbed and close to human habitation for more sensitive species like *C. maurus*, *C. ranivorus*, and *N. denhami* to be found there. *C. maurus* and *N. denhami* might exist in similar but less disturbed areas further west of the site, whereas *C. ranivorus* would require a nearby wetland, which is absent.

The site visit recorded a total of 25 animal species, including seven birds, 15 insects, two mammals, and one reptile species. None of these species are of conservation concern, but noteworthy sightings included the Spotted veld antlion, Amethyst small fruit chafer, and a Parrot-beaked tortoise.

It is recommended that the **remainder of the property (particularly to the west) be left as undisturbed** as possible, to act as a refugium ecological corridor in an increasingly-fragmented landscape.

With regard to the matter of airfield obstruction, the proposed development location is **located inside the Mossel Bay Airport's Obstacle Limited Surfaces but outside the Runway Strip**

and Take-Off & Climb and Approach Flight Paths. It is thus not necessary to do any assessments regarding the Take-Off & Climb and Approach Flight Paths, but it is necessary to initiate an assessment for Mossel Bay Airport's Obstacle Limited Surfaces. It can be confirmed that the **proposed development will not interfere with the Inner Horizontal Surface of the Mossel Bay Airport's Obstacle Limited Surfaces.**

According to the Department of Agriculture, Forestry and Fisheries (DAFF, 2017), the climate capability of the study area is rated as 5, indicating moderate climate capability. The study area falls within the Db land type, characterized by duplex soils, where sandy topsoil abruptly overlies more clayey subsoil, making up over 50% of the land type, with less than 50% of the duplex soils containing non-red B horizons. The soil capability is rated as 4, indicating low to moderate capability, while the terrain capability is rated between 6 and 7, representing moderate to high capability. Land capability values range from 7 (low to moderate) to 8 (moderate), placing the site on the boundary between arable and non-arable land. The desktop assessment aligns with the screening tool's classification of medium agricultural sensitivity. **Given the small development footprint and its minimal impact on current agricultural activities, the specialist recommends that the development proceed.**

Finally, from a Heritage perspective, FC Holm CC conducted a visual impact assessment and concluded that the site, situated at an elevated position partially visible from the N2 scenic route, has limited visibility due to its topography and proximity to existing developments. The area is classified as having low scenic, cultural, and historical significance, resulting in a moderate expected visual impact from the new development, which falls under Category 4. Mitigation measures have been suggested to minimize visual impacts during construction and operation.

An archaeological and cultural heritage impact assessment yielded a Positive Record of Decision from Heritage Western Cape, indicating no significant archaeological materials were present.

A palaeontological impact assessment classified the site's sensitivity as high, necessitating further study. However, the actual sensitivity rating was deemed **LOW**, primarily due to the geological characteristics of the underlying Skurweberg Formation, which limits the potential for fossil heritage resources. Consequently, significant impacts on fossil heritage from construction activities are not anticipated. They recommend however, in case of the unexpected uncovering of fossil bones in the surficial coversands and soil, or buried archaeological material, or unmarked graves, it is recommended that a protocol for finds of potential fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project, basically "If fossil material is uncovered during excavations for foundations and other installations, stop work at that spot and report to Heritage Western Cape".

All recommendations included as part of the Specialist Reports have been taken into account and included within the Draft Environmental Management Programme. No significant impacts should occur as a result of the proposed Storage Facility. All No-Go areas around the

proposed development footprint will be adequately marked and demarcated prior to site establishment or site clearance.

9. [PROPONENTS] ENVIRONMENTAL MANAGEMENT POLICY AND COMMITMENTS

The proponent understands the importance of conserving the environment, and will endeavour to apply all necessary mitigation measures to conserve and maintain sensitive areas and prevent environmental degradation.

10. INTERPRETATIONS

The implementation of the EMP is not an additional or “add on” requirement. The EMP is legally binding through NEMA and the relevant EA. This EMP is to be used during the planning and construction phases of the proposed project. The Environmental Control Officer, appointed by the Client after environmental approval, must use this EMP during the ECO audits to determine the Client’s compliance to it.

Further on, the proponent is to ensure that through the project tender process the EMP forms part of the Project Construction Contract Document to be incorporated in line with:

- General project specifications; and/or
- COLTO: Standard Specifications for Road and Bridge Works for State Road Authorities, 1998 edition. and/or
- SANS 1200 A or SANS 1200 AA, as applicable.

The proponent is also to ensure that through any tender or appointment process, the operational EMP forms part of the management contract with all service providers and contractors, for a period of time as stipulated by the DEA&DP during which the development will be audited for compliance to the operational EMP. This EMP is compiled in line with relevant legislation and general construction project specifications. However, to ensure sound environmental practice, the measures as described in the operational EMP should be implemented for the full operational life of the development.

11. PROJECT PHASE

The first part of this EMP is specifically compiled for the ***period of time prior to commencement of activities associated with construction of the above-mentioned activity.***

If and when applicable, where specific activities of the proposed development fall outside of the general principles contained herein, the Department will attach further ‘activity – specific’ EMP’s as appendices to this document.

12. ROLE PLAYERS AND RESPONSIBILITY MATRIX

For the EMP to be successfully implemented, all the role players involved in the project need to cooperate. For this to happen, role players must have a clear understanding of their roles and responsibilities in the project, be professional, form respectful and transparent relationships, and maintain open lines of communication. The EMP therefore clearly defines the role players involved and indicates their role in the implementation of the generic EMP.

Typically, these role players or the project team may include the Authorities (A), Other Authority (OA), Client /Proponent (C), Consulting Engineers (CE), Resident Engineer (RE), Environmental Officers (EO), Environmental Site Officer (ESO), Environmental Control Officer (ECO), Project Manager (PM), Contractors (C), Environmental Assessment Practitioner (EAP) and Property Owners Association (POA). Further; landowners, interested and affected parties and the relevant environmental and project specialists are also important role players.

13. ENFORCEMENT, MONITORING AND AUDITING

13.1 PRE-CONSTRUCTION AND CONSTRUCTION PHASE

The Client must appoint, at his own cost, an ECO and full time EO (as part of the construction team) who will oversee the implementation of the EMP.

DEA&DP must be informed of the appointment of the ECO prior to construction activities if an Environmental Authorisation was granted. Please note that the responsibility of the particular ECO may end at the end of the construction period. In the event that an ECO is appointed during the operational phase, it must be noted that this ECO may be different from the original ECO and DEA&DP must be notified of this appointment again.

The independent ECO is responsible for fortnightly audits on compliance to relevant environmental legislation, conditions of the Environmental Authorisation (EA) (if applicable), and the EMP for the project. Monthly Audits reports would be submitted to DEA&DP.

Before any construction activities commence, the ECO must compile, for the approval by the Department, an audit checklist based on the contents of this EMP and conditions of the Environmental Authorisation (EA) (if applicable). The ECO shall at the request of the Department forward audit reports to the Department at a frequency determined by the Department which shall be stipulated in the Environmental Authorisation (EA) (if applicable).

Evidence of the following as **key performance indicators** must be included in the audit reports:

- Complaints received from landowners and actions taken.
- Environmental incidents, such as oil spills, concrete spills, etc. and actions taken (litigation excluded).
- Incidents leading to litigation and legal contraventions.
- Environmental damage that needs rehabilitation measures to be taken.

A copy of all ESO and EO monitoring reports, contractor method statements, and pro forma documentation must be held by the ESO and/or the EO on-site and be made available to the Department and or the ECO upon request.

FORMAL ENVIRONMENTAL COMMUNICATION CHANNELS

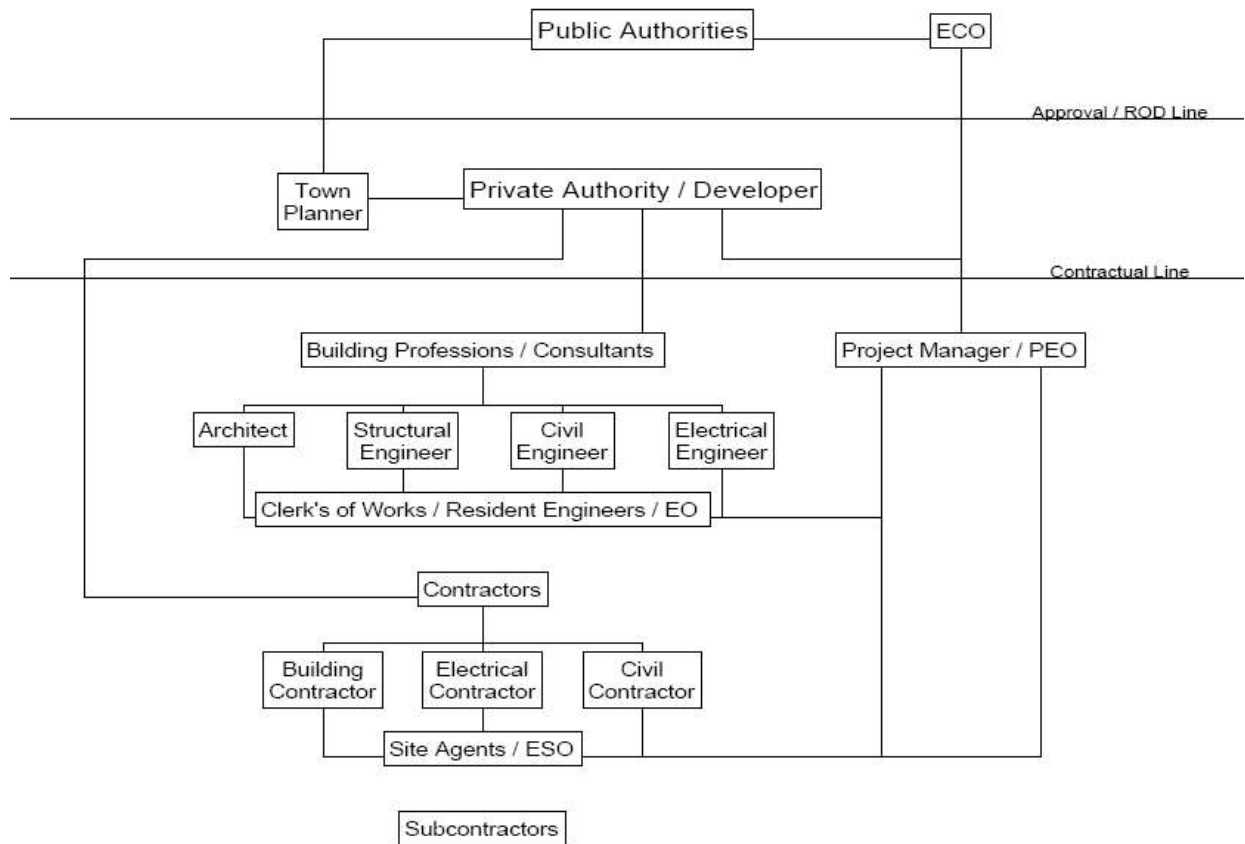


FIGURE 9: REPORTING STRUCTURE AND ROLE PLAYERS INVOLVED IN THE IMPLEMENTATION OF THE EMP

Please note that due to the timeline of the project as well as the coming and leaving of consultants and contractors, as well as the many crossed channels of communication in the DEAD&DP EMP Guideline, it was decided by the project team to use the GACP channels of communication whereby the Project Manager remains the central pivot between all the disciplines. All instructions and reports shall flow through the Project Manager (PM). In environmental matters, the PM becomes the Project Environmental Officer (PEO).

In terms of Regulation 34 of the NEMA EIA Regulations, 2014, external environmental audits to determine compliance with the conditions of the Environmental Authorisation, the EMPr and the CMP must be conducted on a yearly (every 12 months) basis.

The Environmental Audit Reports must be submitted to the Competent Authority every twelve (12) months during the construction phase. The Environmental Audit Report must be prepared by an independent person who is not the ECO and must contain all the information required in Appendix 7 of the NEMA EIA Regulations, 2014 (as amended).

The final Environmental Audit Report must be submitted to the Competent Authority within six months after the operation commenced.

The holder must, within 7 days of the submission of an environmental audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report immediately available to anyone on request and on a publicly accessible website (where the holder has such a website).

13.2. OPERATIONAL PHASE

The ECO shall conduct, at a frequency as determined by the DEA&DP and stipulated in the relevant Environmental Authorisation (EA) (if applicable) for the project, independent environmental audits. The audits are to verify the development's compliance with the operational EMP and conditions of the Environmental Authorisation (EA) (if applicable).

The ECO must compile, for the approval of the DEA&DP, an audit checklist based on the contents of this EMP and conditions of the Environmental Authorisation (EA) (if applicable). The ECO shall at the request of the DEA&DP forward audit reports to the Department at a frequency determined by the Department which shall be stipulated in the Environmental Authorisation (EA) (if applicable).

The following **Key Performance Indicators** must be included in the audit reports:

- Complaints received from landowners and actions taken.
- Environmental incidents, such as oil spills, fires etc., and actions taken.
- Incidents possibly leading to litigation and legal contraventions.
- Environmental damage that needs rehabilitation measures to be taken.

The minutes of site meetings, to which the ECO will have unrestricted access, shall be the official record of environmental activities, complaints, and communications. These minutes will be circulated to the entire project team. A copy of the standard site meeting agenda is available on request.

13.3. MEASUREMENT AND PAYMENT

It is understood that environmental requirements included in this EMP will entail costs over and above those of the civil requirements. These include provision for mitigation and enhancement actions; training and environmental awareness requirements; monitoring; auditing; and corrective actions. The proponent shall recognize this and make provision for it in the tender. Costing for management action should be done with inputs and advice from appropriate technical members of the project team and relevant EAP who have knowledge of the management actions being recommended as well as practical experience in implementing similar measures and techniques.

A lump sum must be allocated for the management of Environmental Specifications where it is not possible to cost requirements of the EMP.

13.4. GENERAL GUIDELINES

Guidelines as per standardised construction documentation must be used.

13.5. AWARENESS (INDUCTION) TRAINING

13.5.1. CONSTRUCTION PHASE

The EO or ESO, or ECO are responsible in ensuring everyone on site is given an environmental awareness induction session which not only clearly defines what the environment is and specifics detailing the local environment but outlines the requirements of the EMP as a management tool to protect the environment.

Refresher courses must be conducted as and when required. The EO or ESO must ensure daily toolbox talks include alerting the workforce to particular environmental concerns associated with the tasks for that day or the area/habitat in which they are working. Awareness posters and a handout must be produced to create awareness throughout the site.

13.5.2. OPERATIONAL PHASE

The ECO is responsible for ensuring everyone involved in the operation of the development at ground level receives an environmental awareness induction which not only clearly defines what the environment is and specifics detailing the local environment, but outlines the requirements of the EMP as a management tool to protect the environment. Awareness posters and a handout must be produced to create awareness throughout the site.

13.6. SITE DOCUMENTATION

13.6.1. CONSTRUCTION PHASE

The following is a list of documentation that must be held on-site and must be made available to the ECO and/or DEA&DP on request.

- Access negotiations and physical access plan
- Site daily diary /instruction book
- Records of all remediation/rehabilitation activities
- Copies of EO reports (management and monitoring)
- Environmental Management Programme (EMP)
- Environmental Authorisation (EA) (if applicable)
- River Maintenance Management Plan (RMMP) (if applicable)
- Rehabilitation Plan (if applicable)
- Complaints Register
- Toilet cleaning slips
- Waste removal slips
- Method Statements

13.6.2. OPERATIONAL PHASE

The following is a list of documentation that must be held on-site and must be made available to the ECO and/or DEA&DP on request.

- Environmental monitoring reports (if required)

- Records of all remediation/rehabilitation activities (if required)
- Environmental Management Plan (EMP)
- Environmental Authorisation (EA) (if applicable)
- River Maintenance Management Plan (RMMP) (if applicable)
- Rehabilitation Plan (if applicable)
- Complaints Register

13.6.3. PRO FORMA DOCUMENTATION

Before the commencement of construction activities

The following attached pro forma documentation is to be filled out and is binding to the EMP and project contract and includes, but not limited to, the following:

- Declaration of understanding by the Client
- Declaration of understanding by the Contractor

During construction activities

The following attached pro forma documentation is to be filled out and maintained. These are binding to the EMP and project contract. They include, but are not limited to, the following:

- Environmental incidents
- Records of all remediation/rehabilitation activities

During the Operational Phase

The following attached pro forma documentation is to be filled out and is binding to the EMP and project contract and includes, but not limited to, the following:

- Declaration of understanding by the Proponent
- Environmental incidents

13.7. TOLERANCES AND NON-COMPLIANCE

The independent ECO is responsible for fortnightly audits on compliance with relevant environmental legislation, conditions of the Environmental Authorisation (EA) (if applicable), and the EMP for the project.

Should the contractor show repeated non-compliance in terms of the audits, a range of fines may be issued to the contractor? These fines are included at the end of this document. The Engineer, in conjunction with the ECO, shall be the judge as to what constitutes a transgression in terms of this clause, subject to the General Conditions of Contract.

14. GENERIC CONSTRUCTION PHASE EMP - IMPLEMENTATION

14.1. PREAMBLE

The point of departure for the EMP is to empower a proactive rather than reactive approach to environmental performance by addressing potential problems before they occur. This will limit corrective measures needed during the construction phase of the project. Therefore, the

purpose of this EMP is to provide management measures that must be implemented by all contractors and sub-contractors alike to ensure that the potential impacts of the proposed project are minimized. It must also be ensured that the EMP is maintained and upheld as a dynamic document for the project team to add or improve on issues that might be considered left out or not relevant to the project. In such instances, the DEA&DP may authorize the ECO to make such changes.

The following tables form the core mitigation measures appropriate to the pre-construction and construction phases. The tables present, the objectives to be achieved, and the management actions that need to be implemented to mitigate the negative impacts and enhance the benefits of the project. Associated responsibilities, criteria/targets, and timeframes are specified.

The **‘pre-construction’** section of this generic EMP, refers to the period of time leading up to and before commencement of construction activities and is included to ensure proactive environmental management measures to identify avoidable environmental damage at the outset and sustain optimal environmental performance throughout the construction phase. Most impacts will occur during the construction phase and must be mitigated through the contingency plans identified in the pre-construction phase.

The bulk of environmental impacts will have an immediate effect during the ‘construction’ phase (e.g. noise, dust, and water pollution). If the site is monitored continually during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the measures outlined in this section, together with a commitment to sound environmental management from the project team.

The “construction” section refers to all construction and its operation-related activities that will occur within the approved area and access roads until the project is completed. This “construction” section is divided into three functional areas, namely “materials”; “plant”; and “construction”. Each of these functional areas within the EMP contains specific generic mitigation requirements and requested contractor method statements stipulated where required.

Many potential environmental impacts will have immediate or long-term effects during the ‘operational’ phase (e.g. noise, waste management, and water pollution). If the development is monitored continually during operations, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the measures outlined in this section, together with a commitment to sound environmental management from the proponent and management team.

It must be noted that the responsible party for the majority of the mitigation measures is that of the Management body, unless otherwise stipulated. The names of the responsible parties must be made available to DEA&DP for record purposes.

The management body must ensure that a maintenance team is employed with the correct equipment and skills to maintain boardwalks, pathways, fences etc. The following tables will

refer to the responsible party as “Management body: ‘to be announced’ and “maintenance crew”.

14.2. STRUCTURE AND CONTENTS OF THE TABLES

The table consists of seven parts as follows:

“Phase of development” - This row will identify either the pre-construction (planning) or the actual construction phase.

“Impact/issue” - This row will identify the issue being addressed, e.g. Materials, site demarcation, heritage, etc.

Mitigation Measure - This column will include all the necessary mitigation measures for each impact/issue’.

Management objectives - This column will indicate what the management objectives to be achieved for each mitigation measure are.

Measurable targets - This column will indicate what evidence is to be used as an indication of whether or not the ‘Management objectives’ have been implemented and hence achieved.

Responsible party - This column will provide information as to which role player, e.g. ECO, RE, etc. is responsible for the implementation and or management of each mitigation measure.

Frequency of action - These columns provide time guidelines for the ‘Responsible party’ by which he/she is to action or manage the required mitigation.

14.2.1. SPECIALIST RECOMMENDATIONS

Pre-Construction and Construction Phases

The last part of the table provides space for the EAP to add specialist recommendations that need to be addressed during the pre-construction and construction phases.

Operational Phase

Additional requirements may need to be added to the table pending conditions required in the Environmental Authorisation (EA) (if applicable). The last part of the table provides space for such conditions, which must be added before the “declaration of understanding” is signed by the proponent and ECO.

TABLE 1: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, PRE-CONSTRUCTION (PLANNING) PHASE EMP

PHASE OF DEVELOPMENT	PRE-CONSTRUCTION (PLANNING)				
IMPACT / ISSUE	GENERAL				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
Public Liaison The Contractor is responsible for erecting public information boards at key locations where public access may be affected by construction activities. The ECO shall approve the number and locations of these information boards. All public information boards to be erected must comply with the relevant local signage by-laws and written approval before the erection may be required. The content of the boards will essentially be to advise the public of the construction activities to be undertaken, or being undertaken and to advise of the prohibition of entering demarcated “no-go” areas. The Contractor shall make allowance for the supply, erection, maintenance, and removal of the information boards. Information boards shall also provide the name and contact number of the ECO, to ensure that the public	To advise the public of the construction activities to be undertaken, and to advise of the prohibition of entering demarcated “no-go” areas (if applicable).	Erection of info boards	Contractor	During Establishment	Site

ENVIRONMENTAL CONSULTANTS

PHASE OF DEVELOPMENT	PRE-CONSTRUCTION (PLANNING)				
IMPACT / ISSUE	GENERAL				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	OF ACTION
has access to the ECO to request information and/or to lodge any complaints.					
Project contract and programme The EMP must be included as part of the tender documentation thereby making it part of the enquiry document to make the recommendations and constraints, as set out in this document, enforceable under the general conditions of the contract. A copy of this EMP and any management documentation (e.g. MMP) must be available on-site. The Contractor shall ensure that all the personnel on site, sub-contractors, suppliers, etc. are familiar with and understand the specifications contained in the EMP.	• Contingencies for minimizing negative impacts anticipated to occur during the construction phase. • Ensure environmental awareness and formalize environmental responsibilities and implementation. • Ensure the implementation of proper alien clearing during the operational phase and freshwater management.	• Contract records. • Signed declaration pro forma's.	Project team.	-	

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Site demarcation and development The surveys for the overall project area and construction footprint as approved in the Environmental Authorisation (EA) (if applicable) must be complete and clearly demarcated before the contractors set up their crew camps or begin construction. The existing boundary fence along the development boundary must be respected and not removed during construction activities. All areas outside of the site boundary are no-go areas. <u>Prevent people/contractors from accessing the 'No Go' areas, which include all fynbos and thicket vegetation outside the proposed development footprint within a semi-intact state and the identified and delineated SCC that has been found on site.</u> All relevant 'general' and 'specific' conditions contained in the Environmental Authorisation (EA) (if applicable) must be included in the space provided below and included as part of this EMP when the "declaration of understanding" is signed by the Client, the Engineer, and the Contractor.		- Contingencies for minimizing negative impacts anticipated to occur during the construction phase. - Prevent contractors from accessing the demarcated 'No Go' areas. This will ensure minimisation of damage and neglect to remnant vegetation.	- Demarcated area's - Filled in section of this document	EAP specialist, Engineer, contractor	As and when required

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
The EO and ECO must be on site to make sure the correct areas are fully demarcated. All relevant 'general' and 'specific' conditions contained in the Environmental Authorisation (EA) (if applicable) must be included in the space provided below and included as part of this EMP when the "declaration of understanding" is signed by the Client, the Engineer, and the Contractor. The EO and ECO must be on site to make sure the correct areas are fully demarcated.					
Emergencies, non-compliance and communication The contractor must provide method statements on the protocols to be followed, and contingencies to be put in place for the following, before construction may begin: • Emergency spills procedures for the contamination of soils from spills and fire. • Handling & storage of oils and chemicals • Cement and concrete batching, which includes the location, storage, washing, & disposal of cement, packaging, tools, and plant.		• Contingencies for minimising negative impacts anticipated to occur during the construction phase. • Safety protocol awareness.	• Method statements	Contractor, Engineer	As and when required

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
• Bitumen handling • Diesel tanks and refueling procedures • Crew camps and construction lay down areas • Workshop maintenance and cleaning of plant • Topsoil Management and handling • Demarcation of No-Go areas • Crossing of watercourses including coffer dams (if necessary). • Dust control Communication in emergencies must follow the suggested lines of communication as stipulated Figure 9.					
Traffic Impact Comply with road rules and signs. Possible traffic disturbances as a result of the activity must be minimized as far possible. Efficient road markings must be available to inform motorists should they prefer to travel a different route. Entrance to the proposed development is located off the N2 on Nagtegaal street		• To reduce possible traffic impact to expectable standards. • Keep traffic operations within the appropriate LOS (level of service).	• The existing level of traffic.	Project team.	Design and implementation.

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Fauna and Flora <u>Botanical Assessment:</u> All possible sensitive faunal species present on the site (if applicable) must be rescued and relocated to another suitable location prior to the commencement of construction activities. Consult the ECO. <u>Three Species of Conservation Concern was identified along with a large number (50-100 plants) of <i>Euphorbia procumbens</i>, mainly along the southern boundary of the site. These plants, including the Three Species of Conservation Concern as set forth in the discussion above be searched and rescued and replanted in a suitable area nearby where it can be protected into perpetuity.</u> It is further suggested that all succulents and bulbs in the development footprint be searched and rescued and replanted in the adjacent areas or efficiently rehabilitated along with the other disturbed areas after construction. Search and rescue must be conducted at an appropriate time of the year, preferably when the soil is wet during the raining season. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering. Essentially		- To protect possible fauna and flora species on the site from being exterminated. - Ensure that the appropriate permits from CapeNature and the Department of Forestry and Fisheries are acquired for search and rescue efforts as well as removals/relocation s. - To keep within demarcated construction areas. - To eradicate and monitor the spread of invasive alien plants for the duration of the	Should sensitive species be present on the site, the correct re-establishment of these species	Contractor and Client	Before construction commences

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
search and rescue attempts will be done prior to any site clearing under the authorisation and direction of the ECO and after obtaining approval and a permit for search and rescue from CapeNature. CapeNature reminds the applicant that a plant permit for endangered species or protected species listed in Schedules 3 and 4 respectively, in terms of the WesternCape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000) must be obtained from CapeNature. This is also to ensure that rescued plant material is accounted for and used in the rehabilitation or relocation process. CapeNature recommends that a suitable location for search-and- rescue be determined prior to plant removal. The micro-climate should also be suitable for the species and the season must be considered to give the plants an adequate chance to re-establish. Extreme caution should be applied during the relocation of the plants to ensure they are not damaged. In light of the above it should be exlaimed that the first option for mitigation is avoidance. This would entail the plants being marked prior to development and not being		constructing and operational phases.			

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
disturbed. This may be possible and is preferable to search and rescue. <u>Search and Rescue Procedure</u> Mark Berry has subsequently compiled a detailed Search and Rescue Plan, dated February 2024, outlining the following requirements; - Plant species considered suitable for search and rescue include certain succulents and geophytes. Carpobrotus cf deliciosus, Acrodon bellidiflorus, Adromischus caryophyllaceus, Crassula cultrate, Euphorbia procumbens, Hypoxis villosa, Ledebouria revoluta, Ornithogalum dubium, Ornithogalum juncifolium, and Satyrium membranaceum. - A large number (50-100 plants) of Euphorbia procumbens were recorded, mainly along the southern boundary of the site. An effort should be made to salvage as many as possible of these. Carpobrotus cf deliciosus can be partly or wholly removed for replanting purposes. - With regards to the S&R of bulb species, the best time for removal is during leaf fall ('blaarval'). In other words, toward the end of the growth period, but before or after the flowering.					

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
- For most flowering bulb species in the Western Cape, this will be towards the end of the winter season (maybe early spring for the Southern Cape). - The bulbs should then be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area. - The best time for planting is during the rainy seasons (March & October). A development area 3.2 km northeast of the site has been identified as a suitable planting (receiving) area for the S&R material. <u>Animal Species</u> Due to the absence of all the SCC from the study site, the site sensitivity could be considered Low. Although the entire development footprint will be transformed, the remaining vegetation on the rest of the property will still be contributing as ecological corridors for the plants and animals in the area. The proposed development will lead to the loss of habitat across the entire study site. To offset this impact, it is advised that the					

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
- remaining portion of the property, especially towards the west, should be preserved as undisturbed as possible to serve as an ecological corridor. This corridor will aid in connecting fragmented habitats in the landscape. - If any planting is done on the property, such as for windbreaks or ornamental gardens, it is recommended to use locally-indigenous plant species. These plants can provide food and shelter for local animal species. - Instead of using rodenticides, especially anticoagulant rodenticides, for rodent control, it is discouraged. Instead, constructing and installing owl breeding boxes targeting species like the Barn owl or Spotted eagle-owl is recommended. These owl species are native to the Mossel Bay area and can effectively control rodent populations without the risks associated with rodenticides. - Furthermore, planting locally indigenous plants along the property's edge is advised to facilitate the movement of small animals such as insects, birds, mammals, and reptiles. This inclusion of					

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
native plants would help mitigate the habitat loss caused by the development, especially in terms of allowing wildlife to move across the landscape.					
Biodiversity The botanist does acknowledge the site is disturbed but also mentioned the degraded fynbos do have the potential to fully recover. Furthermore, the botanist also observed a high diversity of indigenous species which he mentioned can revert to the original vegetation if agricultural practices are ceased. Rehabilitation success will be minimal after development, as stated in the report. Thus, the proposed development will result in the complete transformation. Considering the rapid increase in development within the Mossel Bay, specifically Aalwyndal, it remains crucial to prevent further fragmentation, habitat loss, and transformation of across the landscape. Due to the presence of SCC, Presence of elements of the Critically Endangered Mossel Bay Shale Renosterveld, and the site having a potential to recover to its original state, the site should be viewed as sensitive. If the proposed activity will continue the loss of		• Prevent further fragmentation and habitat loss within the development area. • Facilitate the rehabilitation of indigenous vegetation. • Protect SCC from irreversible loss during construction and operation. • Ensure that the remaining vegetation and habitat patches function as ecological corridors for species movement and	• No development in identified Critical Biodiversity Areas (CBAs). • Preserve at least 50-70% of natural or semi-natural habitat within CBAs and ecological corridors. • Ensure fencing, clearing, and earthworks are restricted to the designated development footprint.	Contractor/Developer	Continuously

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
SCC will have a local impact, but the impact regionally should be determined. Thus, the proposed development must be guided by those objectives to conserve and protect the CBAs (Pool-Stanvliet <i>et al.</i> 2017). Any irreversible loss of habitat would be highly undesirable and could constitute loss of irreplaceable biodiversity (de Villiers <i>et al.</i> 2016). According to the WCBSP and its outlined objectives, - Serve as the primary source of biodiversity information for all land use planning and decision-making in the Western Cape, to be used in conjunction with information from other sectors. - Ensure that the Western Cape's ecological infrastructure is maintained, ecosystem fragmentation and loss is avoided, and the resilience of ecosystems and human communities to the impacts of climate change is strengthened. - Provide a spatial framework for environmentally sustainable development and resource use. - Inform municipalities and other land use planners and regulators about spatial biodiversity priorities in order to		biodiversity retention.			

PHASE OF DEVELOPMENT		PRE-CONSTRUCTION (PLANNING)			
IMPACT / ISSUE		GENERAL			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
promote the wise management of biodiversity, and to streamline and monitor land use decision-making. - Focus on-the-ground conservation and restoration action in biodiversity priority areas, thus supporting CapeNature in implementing its biodiversity mandate, including working with landowners to consolidate and expand the provincial protected area network. - Mainstream biodiversity conservation into the daily activities of a range of development and production sectors whose primary business is not biodiversity conservation, thus promoting greater synergy between biodiversity conservation and development through implementation of the WCBSP. Contractors and appointed ECO must ensure that the objectives as set forth in the WCBSP and stipulated above are uphold and implemented throughout the course of the development.					
Topsoil As topsoil is a valuable resource, it must be stripped from all construction areas before work commences. This topsoil should be stockpiled for use in rehabilitation and		• Minimise scarring of the soil surface and land features. • Minimise disturbance and loss of soil.	• No visible erosion scars once construction is completed. • The footprint has	Contractor	Daily

ENVIRONMENTAL CONSULTANTS

PHASE OF DEVELOPMENT	PRE-CONSTRUCTION (PLANNING)				
IMPACT / ISSUE	GENERAL				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	OF ACTION
landscaping and must not be contaminated with other building materials. The vegetation roots are to be removed together with the top 20cm of topsoil and are to be stockpiled for use during the rehabilitation phase. All alien vegetation needs to be removed from site before the construction activities commence. The topsoil needs to be properly stored on the construction site. Stored topsoil must not be higher than 2m. The stored topsoil must be clearly demarcated and seen as a no-go area. Soil should not be stored for longer than three months.	• Minimise construction footprint. • Maintain the integrity of topsoil's for landscaping and rehabilitation. • Containment of invasive plant growth by means of topsoil monitoring. • Minimise contamination of storm water run-off.	not exceeded the agreed site in terms of EA etc. • Minimal invasive weed and grass growth. • No signs of sedimentation and erosion.			
Appointments and duties of project team The contact details for the ECO, RE, EO, Contractor, ESO shall be completed on the attached pro forma, and a copy kept on site. Before construction activities commence, role players must have a clear indication of their role in the implementation of this EMP. Subcontractor(s) contracts with the principle contractor must contain a clause to the	• Contingencies for minimising negative impacts anticipated to occur during the construction phase. • Ensure implementation and maintenance of	• Contract records. • Signed declaration pro forma's.	Project team.	-	

PHASE OF DEVELOPMENT	PRE-CONSTRUCTION (PLANNING)				
IMPACT / ISSUE	GENERAL				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
effect that the disposal of all construction-generated refuse / waste to an officially approved dumping site is the responsibility of the subcontractor in question and that the subcontractors are bound to the management activities stipulated in this EMP.	management plans and procedures.				

TABLE 2: CONDITIONS CONTAINED IN THE EA TO BE INCLUDED IN THE EMP

PHASE OF DEVELOPMENT	PLANNING	EA REFERENCE NUMBER			
IMPACT / ISSUE	EA CONDITIONS				
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
		•	•		
		•	•		

TABLE 3: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, CONSTRUCTION PHASE EMP (MATERIALS).

PHASE OF DEVELOPMENT	CONSTRUCTION				
IMPACT / ISSUE	MATERIALS				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
Handling					
Stockpiles All stockpile sites are to be approved by the ECO and/or landowner, prior to commencement of stockpiling. All stockpiled material must be easily accessible on site without any environmental damage of the surrounding properties, restricted to already disturbed areas away from natural vegetation. All temporarily stockpiled material must be stockpiled in such a way that the spread of materials are minimised. In the case of strong wind and/or rain all stockpile material must be covered with a tarpaulin in order to prevent erosion. The stockpiles must only be placed within the demarcated areas the location of which must be approved by the RE, EO or ECO.	• Minimise scarring of the soil surface and land features. • Minimise disturbance and loss of soil. • Minimise construction footprint. • Maintain the integrity of topsoil's for landscaping and rehabilitation. • Containment of invasive plant growth by means of topsoil monitoring. • Minimise contamination of	• No visible erosion scars once construction is completed. • The footprint has not exceeded the agreed site in terms of EA etc. • Minimal invasive weed and grass growth. • No signs of sedimentation and erosion.	Contractor	Daily	

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Storm water runoff from the stockpile sites and other related areas must be filtered before entering stormwater system. Stockpiles are to be stabilised if signs of erosion are visible. Soils from different horizons must be stockpiled such that topsoil stockpiles do not get contaminated by sub-soil material. Topsoil stockpiles must be monitored for invasive exotic vegetation growth. Contractors must remediate as and when required in consultation with the EO, RE and ECO. The Contractor shall ensure that subsoil and topsoil are not mixed during stripping, reinstatement, and rehabilitation. No plant, workforce, or any construction related activities will be allowed onto the topsoil stockpiles. Topsoil stockpiles must be clearly demarcated as no-go areas.	storm water run-off.			

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Topsoil stockpiles should not be higher than 2m to avoid compaction thereby maintaining the soil integrity and chemical composition. All stockpiles are to be protected with a suitable geotextile to prevent sedimentation.				
Oil and chemicals The contractor must provide method statements for the “handling & storage of oils and chemicals”, “fire”, and “emergency spills procedures”. These substances must be confined to specific and secured areas within the contractor’s camp, and in a way that does not pose a danger of pollution even during times of high rainfall. These areas must be imperviously bunded with adequate containment (at least 1.1 times the volume of the fuel) for potential spills or leaks Drip trays (minimum of 10cm deep) must be placed under all machinery and vehicles. The surface area of the drip trays will be dependent on the vehicle and must be large enough to catch any hydrocarbons that may leak from the vehicle while standing.	• Prevention of pollution of the environment. • Minimise chances of transgression of the acts controlling pollution.	• No pollution of the environment. • No litigation due to transgression of pollution control acts. • No complaints from I & AP’s. • Method statements.	Contractor	Daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
The depth of the drip tray must be determined considering the total amount / volume of oil in the vehicle. The drip tray must be able to contain the volume of oil in the vehicle. Any spills larger than 100ℓ should be reported to all local authorities. Spill kits must be available on site and in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. Spill kits must be made up of material/product that is in line with environmental best practice (sunsorb is a recommended product that is environmentally friendly). All spilled hazardous substances must be contained in impermeable containers for removal to a General & Hazardous Waste Landfill site, (this includes contaminated soils, and drenched spill kit material).				
Cement	Minimise the possibility of cement residue entering into the surrounding	No evidence of contaminated soil on the construction site	Contractor	Monitored daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
It is suggested that ready-mix cement be used as far as possible to minimize the possible impact on the surrounding environment. Cement batching areas must be located in consultation with the RE, EO or ECO to ensure residues are contained and that the proposed location does not fall within sensitive areas such as drainage lines, stormwater channels, etc. The contractors must provide and maintain a method statement for “cement and concrete batching” which includes the storage, washing & disposal of cement, packaging, tools and plant. The mixing of concrete shall only be done at selected sites on mortarboards or similar structures to contain run-off into natural vegetation, soils, and streams. Cleaning of cement mixing and handling equipment shall be done using proper cleaning trays. <u>No cement wash water is allowed to enter stormwater systems or the adjacent natural water resources on-site.</u> All empty containers must be stored in a dedicated area and later removed from the site for appropriate	environment. Minimise pollution of soil, surface and ground water resources	- No evidence of contaminated water resources - Method statement		

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
disposal at a Licensed Landfill site. All empty cement bags are to be picked up immediately to ensure that cement dust is not blown away. All empty cement bags must be stored in a weather and scavenger proof bin. Cement dust is poisonous and will be detrimental to the environment and especially to the river. Any spillage that may occur must be investigated and immediate remedial action shall be taken. The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and disposed of as waste to a Licensed Landfill site. Washing of the remains into the ground is unacceptable.				
Bitumen Bitumen handling areas must be located in consultation with the RE, EO or ECO to ensure residues are contained and that the proposed location does not fall within sensitive areas such as drainage lines, storm water channels, etc. The contractors must provide and maintain a method statement for “bitumen handling” which includes	- Minimise the possibility of bitumen residue entering into the surrounding environment. - Minimise pollution of soil, surface and	- No evidence of contaminated soil on the construction site - No evidence of contaminated water resources	Contractor	Monitored daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
the storage, washing, & disposal of bitumen, packaging, tools, and plant. All empty containers must be stored in a dedicated bunded area and later removed from the site for appropriate disposal at a Licensed Landfill site. All bitumen paper is to be picked up on the day they are used to prevent bitumen paper blowing around on site. Any spillage that may occur must be investigated and immediate remedial action shall be taken. It is important to note that any bitumen spills and remains must be disposed at a Registered Hazardous Waste Facility. The visible remains of bitumen, either solid, or from washings, shall be physically removed immediately and disposed of as waste to a Registered Hazardous Waste Facility.	ground water resources	Method statement		
Dangerous and Toxic Materials Provision of storage facilities Materials such as fuel, oil, paint, herbicide, and insecticides must be sealed and stored in bermed	Prevention of pollution of soil, surface and ground water resources in the immediate and	- No visible signs of pollution - No litigation due to transgression of pollution	Contractor	Monitor daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
areas or under lock and key, as appropriate, in well-ventilated areas. Storage facilities should be bunded, roofed, secure, rain, wind and tamper proof. Storage areas shall display the required safety signs depicting “no smoking”, no “Naked lights” and “Danger” containers shall be clearly marked to indicate contents as well as safety requirements. Sufficient care must be taken when handling these materials to prevent pollution. Training on the handling of dangerous and toxic materials must be conducted for all staff prior to the commencement of construction. In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs and Sanitation (DWS) must be informed immediately. Empty containers shall be removed to a General & Hazardous Waste Landfill site. Material Safety Data Sheets (MSDS) must be prepared for all hazardous substances on site and	surrounding environments Minimise chances of transgression of the acts controlling pollution	control acts		

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
supplied by the supplier where relevant. MSDS's must be updated as required.				
Bulk storage of fuels and oils The contractors must provide and maintain a method statement for “Diesel tanks and refueling procedures”. Bulk fuel storage tanks on the site shall be on an impervious surface that is bunded and able to contain at least 110% of the volume of the tanks. A Flammable Liquid License must be obtained for diesel volumes greater than 200 liters. As no application was lodged for this activity, it should be noted that Environmental Authorisation is required for the storage of Diesel and/or Petrol with volumes greater than 30 000 liters. Bulk fuel storage tanks shall be located in a portion of the construction camp where they do not pose a high risk in terms of water.	- Prevention of pollution of soil, surface and ground water resources in the immediate and surrounding environments. - Minimise chances of transgression of the acts controlling pollution.	- No visible signs of pollution. - No litigation due to transgression of pollution control acts. - Method statement.	Contractor.	Once off, as required.

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	MATERIALS			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Bulk fuel storage tanks shall be placed so that they are out of the way of traffic, so that the risk of the tanks being ruptured or damaged by vehicles is minimised. Bulk fuel storage should be covered during the rainy season.				
Use of dangerous and toxic materials The contractor shall keep the necessary materials and equipment on site to deal with spills/fires of the materials present should they occur. The contractor shall set up a procedure for dealing with spills/ fire, which will include notifying the ECO and the relevant authorities prior to commencing with construction. These procedures must be developed in consultation and approval by the appointed EO. All staff should receive some form of fire training. Fire buckets and hoses shall be in good working order and easily accessible on site. A record must be kept of all spills and the corrective action taken.	- Prevention of pollution of soil, surface and ground water resources in the immediate and surrounding environments - Minimise chances of transgression of the acts controlling pollution	- No pollution of the environment - No litigation due to transgression of pollution control acts	Contractor	As required

TABLE 4: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, CONSTRUCTION PHASE EMP (PLANT)

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Eating areas and camp followers The contractors must provide and maintain a method statement for “Crew camps and construction laydown areas”. The Contractor shall in conjunction with the EO, designate the restricted eating area for eating during normal working hours. Two refuse bins with lids must be provided and cleaned on a daily basis. The bins are to be secure, wind, weather, and scavenger proof. No fires will be allowed on site. No animals, domestic or otherwise are allowed on the premises. The feeding, or leaving of food, for stray or other animals in the area is strictly prohibited. Camp followers/informal traders must not be allowed to congregate on pavements or outside the construction site. However, at the contractor's discretion facilities can be made available within the designated eating area.	• Control potential influx of vermin and flies • Neat work place and hygienic environment • Minimise negative social impacts to local businesses and residences.	• No visual sign of vermin and flies • No complaints from I & AP's	Contractor, EO	Once off, monitor daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Litter (even if originating outside the camp) and concrete bags etc. must be picked up and put into suitably closed bins.				
Toilets and ablution facilities The contractor will be responsible for providing all sanitary arrangements for his and the sub-contractors team. A minimum of one chemical toilet shall be provided per 15 persons. Sanitary arrangements shall be to the satisfaction of the ECO and the local authority. The contractor shall keep the toilets in a clean, neat, and hygienic condition. The contractor shall supply toilet paper at all toilets at all times. Toilet paper dispensers shall be provided in all toilets. Toilets provided by the contractor must be easily accessible and a maximum of 150m from the works area to ensure they are utilised. All toilets will be located within the contractor's camp. Should toilets be needed elsewhere, their location must first be approved by the RE, EO or ECO. The contractor (who must use reputable toilet-servicing company) shall be responsible for the cleaning,	• Ensure proper sanitation is achieved which will encourage the workforce to utilise toilets provided and not the surrounding habitat • Minimise potential of diseases on site • Minimise potential to pollute soils, water resources and natural habitats	• Workforce use toilets provided • No complaints received from I & AP's as well as members of the workforce • No visible or measurable signs of pollution of the environment (soils, ground and surface water)	Contractor, RE or EO	As and when required

PHASE OF DEVELOPMENT		CONSTRUCTION			
IMPACT / ISSUE		PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
maintenance and servicing of the toilets. The contractor (using reputable toilet-servicing company) shall ensure that all toilets are cleaned and emptied before the builders' or other public holidays. Toilets out on site must be secured to the ground and have a sufficient locking mechanism operational at all times. If workforce is found not using toilet facilities or for an insufficient amount of toilets on site a penalty will be issued.					
Waste management Please refer to the waste minimization plan as part of this EMP A fenced off area must be created within the camp site for refuse and waste management as indicated above. ECO to inspect for compliance. Any illegal dumping of waste will not be tolerated. Proof of legal dumping must be able to be produced on request.	• Sustainable management of waste by recycling. • To keep the site neat and tidy. • Minimise litigation and complaints by I&AP's. • Reduce visual impact. • Control potential influx of vermin and	• Disposal of rubble and refuse in an appropriate manner with no rubble and refuse lying on site. • Site is neat and tidy. • No complaints from surrounding residents and businesses.	Contractor, EO.	Daily.	

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
All refuse bins must have a lid secured so that animals cannot gain access. Sufficient closed containers must be strategically located around the construction site to handle the amount of litter, wastes, rubbish, debris, and builders wastes generated on the site. Subcontractor(s) must contain a clause to the effect that the disposal of all construction-generated refuse / waste to an officially approved dumping site is the responsibility of the subcontractor in question and that the subcontractors are bound to the management activities stipulated in this EMP. Proof of this undertaking must be issued to the ECO. All solid and chemical wastes that are generated must be removed and disposed of at a licensed waste disposal site. The contractor is to provide proof of such to the EO and ECO. Chemical containers and packaging brought onto the site must be removed for disposal at a suitable site. A skip, with a cover, must be used to contain refuse from campsite bins, rubble, and other construction material.	flies thereby minimising the potential of diseases on site and the surrounding environment. Minimise potential to pollute soils, water resources and natural habitats.	- Sufficient containers available on site. - No visible or measurable signs of pollution of the environment (soils, ground and surface water). - Method statement.		

PHASE OF DEVELOPMENT		CONSTRUCTION		
IMPACT / ISSUE		PLANT		
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
No rubble (concrete, bricks, asphalt etc.) are to be spoiled on site. Concrete rubble may be disposed at a Registered General Waste Facility and bitumen rubble must be disposed at a Registered Hazardous Waste Facility.				
Dust The contractors must provide and maintain a method statement for “dust control”. The method statement must provide information on the proposed source of water to be utilised and the details of the licenses acquired for such usage. A minimum of two watering trucks will be available for use on the site at all times. This will allow for watering to be done while the other truck is being filled and prepared for use. Watering trucks will be prepared and made ready for watering of gravel roads in the afternoons so that they are ready first thing in the morning to be used. All road surfaces on the site will be watered down at least once per day. Vegetation removal for the site will be planned to minimise the length of time that land is open and exposed as a dust source before construction begins.	• Reduce dust fall out. • Reduce visual impact. • Minimise loss of valuable soil material.	• No visible signs of dust. • No complaints from Interested and Affected Parties. • No incidences reported to ECO. • No visible evidence of dust contamination on the surrounding environment. • Method statement. • Baseline targets	RE, Contractor, EO.	Monitored daily.

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
The large open areas that are exposed, must be cordoned off to prevent vehicles and other activities from disturbing the area. If no vegetation is growing, then a once off treatment of Eco Dust 200 D can be applied to stabilise the area. A checklist must be kept of the watering activities as proof that they are being done and to quantify the amount of water used per week for this purpose. For small stockpiles of temporary material, the material must be covered with hessian or other cloth if practically possible/feasible Stockpile placement will be planned to be as close to where they will be used as possible. The planning will also try to minimise the length of time that the material will be kept on site before it is used in the construction process Water abstraction for dust control from the surrounding rivers are strictly prohibited without prior approval. Where practically possible, site screening methods must be employed to minimize the potential dust nuisance created by earth moving equipment, particularly during		not exceeded during regular monitoring of dust counts.		

PHASE OF DEVELOPMENT		CONSTRUCTION			
IMPACT / ISSUE		PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
site preparation processes. Such dust screening measures should be installed on the perimeter of the site and at areas of high dust generation. The materials used should be capable of reducing the quantity of dust being blown off site to below nuisance levels. Potable water cannot be used as a means of dust suppression, alternative measures must be sourced. The use of 'grey' water must be investigated as an alternative. The contractor will be responsible for sourcing this water and obtain the required approvals. The construction camp shall be watered during dry and windy conditions to control dust fallout. At the end of construction, the site camp must be fully rehabilitated by removing the temporary surface, ripping the area to loosen the soil and the area must be re-vegetated with locally indigenous vegetation only, according to the landscape development plan for the project. All vehicles transporting material that can be blown off (e.g. soil, rubble etc.) must be covered with a tarpaulin, and speed limits of 20 km/h must be adhered to. Excessive dust conditions must be reported to the ECO.					

PHASE OF DEVELOPMENT		CONSTRUCTION		
IMPACT / ISSUE		PLANT		
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Workshop equipment, maintenance and storage The contractors must provide and maintain a method statement for “workshop maintenance and cleaning of plant”. All maintenance and washing of vehicles and equipment shall be done off-site as far as possible. During servicing of vehicles or equipment, a suitable drip tray shall be used to prevent spills onto the soil. Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and remediate to the satisfaction of the EO or RE. Cleaning and remediation must be done with products that are in line with best environmental practice i.e. Sunsborb. The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site. The Contractor must ensure that senior and the other relevant members of the workforce are trained in dealing with spills by using emergency spill kits.	• Prevent pollution of the environment • Minimise chance of transgression of the acts controlling pollution • Disposal of hazardous substances to a General & Hazardous Waste Landfill site.	• No pollution of the environment • No litigation due to transgression of pollution control acts • Method statement	RE, Contractor, EO	Monitor daily

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
All spills of hazardous substances must be reported to the ESO, EO, RE or ECO. The contractor must comply with the regulations of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as well as specific specifications set forth by the health and safety agent.				
Noise All construction vehicles must be in a good working order to reduce possible noise pollution. Work hours during the construction phase shall be strictly enforced unless permission is given (07H00 – 18H00). Permission shall not be granted without consultation with the local industries and businesses by the EO. No work to be done on Sundays. Noise reduction is essential and Contractors shall endeavour to limit unnecessary noise, especially loud talking, shouting or whistling, radios, sirens or hooters, motor revving, etc. The use of silent compressors is a specific requirement. All machinery to be muffled where possible.	• Maintain noise levels below “disturbing” as defined in the National Noise Regulations. • Minimise the nuisance factor of the development.	• No complaints from surrounding landowners or I&APs.	Contractor, EO.	As and when required.

PHASE OF DEVELOPMENT	CONSTRUCTION			
IMPACT / ISSUE	PLANT			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Machinery and equipment on site must be maintained so as to avoid any unnecessary noises.				

TABLE 5: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, CONSTRUCTION PHASE EMP (CONSTRUCTION)

PHASE OF DEVELOPMENT	CONSTRUCTION				
IMPACT / ISSUE	CONSTRUCTION				
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION	
Crew camps Accommodation for members of the workforce will not be permitted on site unless authorisation has been given in terms of the Environmental Authorisation (if applicable) issued for the site. If accommodation is to be provided for workers, details need to be provided as to the location and facilities to be provided for the workers. Dedicated wash areas must be situated away from any surface water sources and natural areas. The contractor's camp shall be monitored for dust fallout and dust suppression applied as required. This may include the laying of gravel, the use of grey water can be considered as an option if the required permits have been acquired. The contractor's camp, offices and storage facilities shall be located within the site boundaries. If this is not feasible an alternative should be designated in consultation with the ECO.	• Minimise water pollution. • Minimise dust fallout. • Minimise unwarranted environmental damage outside the footprint. • Maintain a clean and healthy working environment. • Minimise visual impact to surrounding environment.	• No signs of water or soil pollution. • No complaints from surrounding landowners or I&APs. • No visible signs of litter. • Method statements.	Contractor, EO, ESO.	Monitor daily.	

The contractor shall provide labourers to clean up the contractor's camp and construction site on a daily basis. These areas shall then be inspected by the contractor or his/her ESO to ensure compliance with this requirement. The contractor shall be responsible for cleaning the contractor's camp and construction site of all structures, equipment, residual litter and building materials at the end of the construction period and, the topsoil restored in areas where landscaping is to take place.				
Fires No fires will be allowed on site. The Contractor shall ensure that there is appropriate fire-fighting equipment available on site at all times.	• Minimise risk of veldt fires. • Minimise destruction of natural fauna and flora. • Maintain safety on site.	• No veldt fires started by the contractor's workforce. • No claims from landowners for damages due to veldt fires. • Method statement.	Contractor, ESO.	Monitor daily.

Erosion and sedimentation To reduce the loss of material by erosion, the contractor shall ensure that disturbance on site is kept to a minimum. The contractor shall be responsible for rehabilitating all eroded areas in such a way that the erosion potential is minimised after construction has been completed. After construction all disturbed areas needs to be landscaped with indigenous species or use the stripped topsoil. Silt traps/fences must be installed both, up and downstream of the works areas. Silt traps have to be utilized during all dewatering activities to prevent siltation of watercourses or stormwater systems. Silt traps either have to partially filter the suspended solids or allow settlement in a manageable location. It is recommended that all disturbed surfaces should be rehabilitated/revegetated to prevent erosion.	• Minimise erosion damage. • Minimise scarring of the soil surface and land features. • Minimise disturbance and loss of topsoil. • Re-growth of disturbed areas.	• No erosion scars. • No loss of topsoil. • No interference with the natural flow of water. • No visible erosion scars once construction is completed. • The footprint has not exceeded the agreed boundaries. • All damaged areas successfully rehabilitated.	Contractor, EO, ESO.	As and when required.
Fauna <u>All activities on site must comply with:</u> The regulations of the Animal Protection Act, 1962 (Act No. 71 of 1962); and Marine Living Resources Act, 1998 (Act No. 18 of 1998).	• Minimise disturbance to animals. • Minimise destruction of habitat. • To ensure	• No complaints from Nature Conservation. • No litigation concerning applicable	RE, Contractor, EO, ESO.	Monitor daily.

All construction workers must be informed that the intentional killing of any animal is not permitted as faunal species are a benefit to society. Poaching is illegal and it must be a condition of employment that any employee caught poaching will be dismissed. Employees must be trained on how to deal with fauna species as intentional killing will not be tolerated. In the case of a problem animal e.g. a large snake a specialist must be called in to safely relocate the animal if the EO or ECO is not able to. All possible sensitive faunal species present on the site must be rescued and relocated to another suitable location prior to the commencement of construction activities. (Consult the ECO in this regard) <u>To mitigate the impact of habitat loss due to the proposed development:</u> • Preserve the remaining portion of the property, particularly to the west, as an undisturbed ecological corridor to connect fragmented habitats. • Use locally-indigenous plant species for any planting on the property to provide food and shelter for local wildlife. • Avoid using rodenticides, especially anticoagulant rodenticides, for rodent control. Instead, install owl breeding boxes targeting	construction attempts fall within the legislative as set fourth by CapeNature and other regulatory members.	animal protection acts. • No measurable or visible signs of habitat destruction.		
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species like the Barn owl or Spotted eagle-owl, which can naturally control rodent populations. Plant locally indigenous plants along the property's edge to facilitate the movement of small animals, aiding in mitigating habitat loss associated with the development and supporting wildlife movement across the landscape.				
Heritage No heritage features are present on site. In terms of the National Heritage Act, 1999 (Act No. 25 of 1999), should any archaeological artifacts be exposed during construction activities, work on the area where the artifacts were found shall cease immediately and the ECO as well as the Local Council shall be notified within 24 hours. Upon receipt of such notification, the ECO will arrange for the excavation to be examined by an Archaeologist. Under no circumstances shall archaeological artifacts be removed, destroyed or interfered with. Any archaeological sites exposed during demolition or construction activities must not be disturbed prior to authorisation by the Heritage Western Cape and/or the South African Heritage Resources	- Limit the destruction of the country's heritage resources. - The preservation and appropriate management of new archaeological finds should these be discovered during construction.	No destruction of or damage to known archaeological sites.	Contractor, EO, RE, ESO.	Monitor Daily.

Agency on the appropriate provincial heritage resource agency. <u>The only potentially significant impact identified is the visual intrusion that a relatively high-density development would have within a low-density rural context. This was assessed as a medium significance impact but with mitigation (landscape plan with screening vegetation) this can be reduced to low significance.</u> <u>Heritage Impact Assessment:</u> The following recommendations were made by the author: • The buildings must make use of visually recessive materials, colours and design principles; • Fencing to be visually permeable and dark-coloured; • A landscape plan that includes perimeter planting to screen the development must be compiled prior to the start of construction; • Night time lighting must be minimised and light fittings must be designed to minimise light spillage; • If any palaeontological material is found during the course of development then the HWC Fossil Find Procedure should be implemented and the find should be reported to the heritage authorities; • If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the				
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property of the state and may require excavation and curation in an approved institution. <u>Palaeontological Impact Assessment:</u> The EAP was concerned regarding the effect the construction of the foundation may have on the subsurface which is considered to be weathered consisting of soil, and possibly grey windblown coversands in the majority of the proposed development site's places. The study concluded that the impact construction will have on the Skurweberg Formation will be limited. The trenches for foundations for the buildings are expected to be conventional and 0.6 to 0.8 m in depth. The post holes for fencing are expected to be of similar depth, while footings for tall lamp poles are larger and deeper. The deepest excavations are for the conservancy tanks and are not expected to exceed ~2 m depth. Additionally the fossil content of the Silurian Skurweberg Fm. fluvial braid-plain sandstones is sparse. Trace fossils are recorded from the finer-grained, muddier beds attributed to shallow marine or estuarine settings. Consequently the sudden uncovering of fossils are highly unlikely as well as the disruption of the bedrock within the proposed development site. As a result the author of the assessment concluded that Impacts on fossil heritage resources due to disturbance of the soil profile formed on the weathered Skurweberg Formation underlying the Erf 21277 Project Area are not anticipated.				
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They recommend however, in case of the unexpected uncovering of fossil bones in the surficial coversands and soil, or buried archaeological material, or unmarked graves, it is recommended that a protocol for finds of potential fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project, basically "If fossil material is uncovered during excavations for foundations and other installations, stop work at that spot and report to Heritage Western Cape". A Chance Find Protocol must be implemented once excavation activities commence on site which entails the following; 1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. 2. When excavations begin the rocks and discard must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone or coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted. 3. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Figure 9-10). This information will be built into the EMP's training and awareness plan and procedures.				
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4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. 5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible. 6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site an HWC or a SAHRA permit must be obtained. Annual reports must be submitted to HWC and SAHRA as required by the relevant permits. 7. If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to HWC and SAHRA once the project has been completed and only if there are fossils. 8. If no fossils are found and the excavations have finished then no further monitoring is required. <u>Visual Impact Assessment:</u> They recommend the following mitigation measures to be implemented both during the construction and operational phase.				
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<i>Construction phase mitigation measures</i> • Locate site camp and temporary structures within an appropriate area that is not visible from the most prominent views and routes frequented by residents and tourists in Aalwyndal. • Building works on site must be screened with site hoarding constructed to a minimum height of 1800mm comprising a double layer of 80% shade netting, securely fixed to three horizontal 114 x 38mm treated timber members top, middle and bottom fixed to 114 x 114mm treated timber posts or poles at 3m centres set securely into ground to a minimum depth of 700mm and including all necessary corner posts, stays, etc. The contractor is to maintain all hoardings and keep clean and finally remove and make good on completion of the contract. • Disturbance area and hoarding must be limited to the smallest area possible needed for construction. • Existing screening vegetation to remain on site must be protected and fenced off from construction area. • Temporary site lighting if required must be kept to a minimum and not be flood lighting wherever possible. • The construction site must be kept clean and in a neat condition at all times during the construction period. • Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works. <i>Design and Operational Phase mitigation measures</i> • Use visually permeable fencing rather than boundary walls, to visually integrate new developments with the existing rural landscape.				
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• Use vegetated buffers along site boundaries to screen new developments from scenic views and routes. Vegetation must attain a height of at least 5 - 9 meters at maturity to provide adequate screening. Although the natural vegetation in the Aalwyndal area is not rich in tall growing tree species hardy drought resistant indigenous trees that can withstand coastal conditions such as Brachyleana discolor, Searsia crenata and Buddleja saligna can be closely planted to form tall hedges that will screen new developments. Non-invasive, evergreen, tall growing exotic trees that complement the existing landscape typology can also be considered. • Maintain new tree and shrub planting until it is self-sufficient. • Buildings and roadways must be positioned along contours to limit cut and fill operations wherever possible. • Rehabilitate all cut and fill areas around new developments directly after construction to minimise visual intrusion. • Reduce massing of built form by making use of setbacks from the boundary along the street and side boundaries. Setback area will provide space for vegetated buffers to reduce visual intrusion from prominent view corridors. Step building mass down towards roadway and side boundary so that the largest storage units are not located on the street and side boundary with the adjacent Erf 21276. • Use finishes and colours on external building envelope that will merge with the surrounding landscape and recede from view from a distance.				
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• Reflective surfaces must be kept to a minimum and shaded with roof overhangs and / or screens to limit glare. Use mat finish paint on external surfaces. • <i>Lighting design must conform to the following:</i> • Ensure lighting sources are top covered and directed only where needed ensuring that no light spillage occurs. • Ensure that no open light sources are visible from beyond the site. • Avoid flood lighting and spot lighting for security purposes.				
No-go / sensitive areas Topsoil stockpiles are to be demarcated with danger tape and seen as no-go areas. All construction activities must remain within the boundaries of the development area, as demarcated at the start of the construction phase. An existing fence is in place surrounding the development boundary and this fence must not be disturbed or removed prior to construction activities having been completed. The current development footprint of 1.44ha has no additional “no-go” area(s) of concern. No-go areas include all natural areas outside of the development footprint (1.44ha). <u>Three Species of Conservation Concern was identified along with a large number (50-100 plants) of <i>Euphorbia</i></u>	• Minimise the potential for the spread of the construction footprint. • Reduce loss of fauna and flora habitat. • Minimise the potential for loss of protected and or endangered fauna and flora species.	• No sign of movement through “no go” areas. • Containment of footprint.	RE, Contractor, ESO, EO.	Monitor daily.

<u>procumbens</u>, mainly along the southern boundary of the site should also be marked off as no-go areas to initiate avoidance.				
Access routes/haul roads Access roads for earthmoving-equipment must be clearly designated and be positioned as close as possible to the proposed development site. No driving off from the marked roads is permitted and designated parking areas must be identified and demarcated with applicable signage. Neither the site nor its access roads must be utilised for recreational activities, this includes but is not limited to quad bikes, 4x4's and dirt bikes. Security personnel must be informed and ensure that this is enforced.	• Minimise loss of topsoil and enhancement of erosion. • Minimise fauna and flora displacement by destruction of natural habitats. • Reduce traffic impacts to surrounding communities with appropriate construction demarcations.	• No erosion on access roads after completion of construction. • No loss of topsoil due to runoff water on access roads.	Contractor, RE or EO.	As required, monitor daily.
Crime, safety and security No site staff, other than security personnel and skeleton staff shall be housed on site unless otherwise stipulated in the Environmental Authorisation. Security personnel and skeleton staff shall be supplied with adequate protective clothing, ablution facilities, water and refuse collection facilities. A boundary fence will serve to prevent public access to the site, for public safety and security	• Reduce the risk of potential incidences. • Minimise the potential impact on the environment. • Reduce the risk of possibly fatal incidents occurring	• No incidences reported.	RE, Contractor, ESO, EO.	Monitor daily.

reasons. The access to the site must be controlled so as to restrict unauthorised personnel from entering the site. The workers on site must retain some means of identification. The ESO and the contractor are responsible for ensuring that only authorised personnel are on site at all times. The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the National Building Regulations. Site-specific conditions and regulations as set forth by the health and safety agent should also be adhered to. The contractor shall ensure that all emergency procedures are in place prior to commencing work. Emergency procedures shall include (but not be limited to) fire, spills, contamination of the ground, accidents to employees, use of hazardous substances and materials, etc. The contractor shall ensure that lists of all emergency telephone numbers / contact persons are kept up to date and that all numbers and names are posted at relevant locations throughout the construction site. The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. The contact details of this emergency	on site.			
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centre, as well as the police and ambulance services must be available at prominent locations around the construction site and the construction crew camps.				
Visual impact Shade cloth must be utilised to conceal and minimise the visual impact of contractor camps, lay down and storage areas. The contractor must rehabilitate the construction camp and any other disturbed areas once construction activities have terminated. Compacted areas will be ripped and windrowed topsoil be placed back on the disturbed areas. Topsoil need to be placed back in such a way that it blends in with the natural contour and surrounding of the natural environment. Once construction is complete, rehabilitation of un-built areas must be undertaken in order to restore the aesthetic & ecological value of the area. Rubble and litter must be removed every two weeks or more often as the need arises and be disposed of at a registered landfill site. After construction all disturbed areas needs to be landscaped with indigenous species or the topsoil stripped prior to construction.	• Minimise visual impact. • Maintain the optimal visual impact/visual intrusion levels to minimise obscurity towards surrounding communities and areas. • Keep the site neat and as hygienic as possible.	• No complaints from I & AP's.	Contractor, landscape contractor, ESO.	Monitor daily.

It is additionally recommended that these mitigation measures also be implemented as suggested by the visual impact assessment. • Locate site camp and temporary structures within an appropriate area that is not visible from the most prominent views and routes frequented by residents and tourists in Aalwyndal. • Building works on site must be screened with site hoarding constructed to a minimum height of 1800mm comprising a double layer of 80% shade netting, securely fixed to three horizontal 114 x 38mm treated timber members top, middle and bottom fixed to 114 x 114mm treated timber posts or poles at 3m centres set securely into ground to a minimum depth of 700mm and including all necessary corner posts, stays, etc. The contractor is to maintain all hoardings and keep clean and finally remove and make good on completion of the contract. • Disturbance area and hoarding must be limited to the smallest area possible needed for construction. • Existing screening vegetation to remain on site must be protected and fenced off from construction area. • Temporary site lighting if required must be kept to a minimum and not be flood lighting wherever possible.				
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• The construction site must be kept clean and in a neat condition at all times during the construction period. • Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works. They recommend the following mitigation measures to be implemented both during the construction and operational phase. <i>Construction phase mitigation measures</i> • Locate site camp and temporary structures within an appropriate area that is not visible from the most prominent views and routes frequented by residents and tourists in Aalwyndal. • Building works on site must be screened with site hoarding constructed to a minimum height of 1800mm comprising a double layer of 80% shade netting, securely fixed to three horizontal 114 x 38mm treated timber members top, middle and bottom fixed to 114 x 114mm treated timber posts or poles at 3m centres set securely into ground to a minimum depth of 700mm and including all necessary corner posts, stays, etc. The contractor is to maintain all hoardings and keep clean and finally remove and make good on completion of the contract. • Disturbance area and hoarding must be limited to the smallest area possible needed for construction. • Existing screening vegetation to remain on site must be protected and fenced off from construction area. • Temporary site lighting if required must be kept to a minimum and not be flood lighting wherever possible.				
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• The construction site must be kept clean and in a neat condition at all times during the construction period. • Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works. <i>Design and Operational Phase mitigation measures</i> • Use visually permeable fencing rather than boundary walls, to visually integrate new developments with the existing rural landscape. • Use vegetated buffers along site boundaries to screen new developments from scenic views and routes. Vegetation must attain a height of at least 5 - 9 meters at maturity to provide adequate screening. Although the natural vegetation in the Aalwyndal area is not rich in tall growing tree species hardy drought resistant indigenous trees that can withstand coastal conditions such as Brachyleana discolor, Searsia crenata and Buddleja saligna can be closely planted to form tall hedges that will screen new developments. Non-invasive, evergreen, tall growing exotic trees that complement the existing landscape typology can also be considered. • Maintain new tree and shrub planting until it is self-sufficient. • Buildings and roadways must be positioned along contours to limit cut and fill operations wherever possible. • Rehabilitate all cut and fill areas around new developments directly after construction to minimise visual intrusion. • Reduce massing of built form by making use of setbacks from the boundary along the street and side boundaries. Setback area will provide space for vegetated buffers to				
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reduce visual intrusion from prominent view corridors. Step building mass down towards roadway and side boundary so that the largest storage units are not located on the street and side boundary with the adjacent Erf 21276. • Use finishes and colours on external building envelope that will merge with the surrounding landscape and recede from view from a distance. • Reflective surfaces must be kept to a minimum and shaded with roof overhangs and / or screens to limit glare. Use mat finish paint on external surfaces. • <i>Lighting design must conform to the following:</i> • Ensure lighting sources are top covered and directed only where needed ensuring that no light spillage occurs. • Ensure that no open light sources are visible from beyond the site. • Avoid flood lighting and spot lighting for security purposes.				
Hydrology/Freshwater Increased run-off during construction must be managed using berm and other suitable structures as required to ensure flow velocities are reduced; this must be done in consultation with the Resident engineer as well as the ECO. The Contractor shall take reasonable measures to control the erosive effects of storm water runoff. Storm water, wherever possible, must be allowed to soak into the land in the area on which the water fell.	• Minimise pollution of soil, surface and ground water resources in the immediate and surrounding environments. • Minimise impeding the natural flow of water. • Minimise the impact	• No visible signs of pollution. • No signs of siltation of watercourses. • No visible erosion scarring once construction is completed.	RE, Contractor, EO.	As and when required, monitor daily.

The contractor shall ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm water system. No wastewater are to run freely into any of the surrounding streets. All stormwater drains (if applicable) must be covered with bidim.	on natural water flow dynamics. Minimise scarring of the soil surface and land features.	Minimum loss of topsoil.		
Watercourse/Aquatic Sources <u>An Aquatic Biodiversity Compliance Statement was conducted, and the following statement is of consideration.</u> <u>Development Management</u> - Contractor laydown areas are to be established outside of the 500-metre Regulatory Zone of the wetland system and only for a short duration in consultation with the competent authority. - All development footprint areas to remain as small as feasibly possible and vegetation clearing to be limited to what is absolutely essential to complete the required works. - Construction Activities should preferably be undertaken during the drier summer months, to minimise the impact on the Hydrological & Geomorphological Functioning of the wetland system.	- Minimise scaring of the soil surface and land features. - Minimise disturbance and loss of soil. - Minimise construction footprint. - Minimise sedimentation of nearby drainage lines. - Maintain the integrity of topsoil's for future landscaping and rehabilitation. - Containment of invasive plant growth.	- No visible erosion scars once construction is completed. - The footprint has not exceeded the agreed site in terms of EA etc. - Minimal invasive weed growth. - No signs of sedimentation and erosion. - Method statement.	Contractor.	Daily.

• All construction debris and litter must be removed. It should be temporarily stockpiled outside the extent of the 500-metre regulatory buffer zone but must be removed and disposed of at a licensed Processing Facility at regular intervals as specified in the legally binding Environmental Management Plan (EMP) approved by the Competent Authority. • Care must be taken, and all construction personnel must receive training on the risks of chemical contamination of the wetland area. • Chemical spills within and surrounding the 500-metre wetland regulatory buffer zone should be immediately remediated utilizing an Emergency Spill Response Procedure to form part of the legally binding Environmental Management Plan (EMP) approved by the Competent Authority. <u>Vehicular Access</u> • All construction vehicles must be regularly inspected for leaks. Refueling must take place on a sealed surface area to prevent the ingress of hydrocarbons into the topsoil. • In the event of a vehicle breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practised near the surface area to prevent the ingress of hydrocarbons into the topsoil. • All spills should they occur, should be immediately cleaned up and treated accordingly.				
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<u>Soil</u> • Sheet runoff from excavations and stockpiles should be slowed down by the strategic placement of silt traps in accordance with the legally binding Environmental Management Plan (EMP). • As far as feasibly possible, all construction activities should occur during the dry summer months (December – February). • All stockpiles are to be protected with a suitable geotextile to prevent sedimentation.				
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TABLE 6: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, OPERATIONAL PHASE EMP (GENERAL).

PHASE OF DEVELOPMENT	OPERATIONAL			
IMPACT / ISSUE	General			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Waste management Disposal of waste during construction is the responsibility of the contractor and must only be removed to a licensed landfill site. A fenced off area must be created within the construction camp site for refuse and waste management. Refuse is to be collected in two separate containers, one for recyclable materials (i.e. glass, metal, paper and plastic) and the other for non-recyclable materials. These are to be disposed of at the various approved waste disposal sites. Please refer to the waste Minimization Plan Herewith attached.	• Sustainable management of waste by recycling • To keep the development neat and tidy • Minimise litigation and complaints by I&AP's • Reduce visual impact • Control potential influx of vermin and flies thereby minimising the potential of diseases at the site and the surrounding environment	• Disposal of refuse in an appropriate manner with no refuse polluting the development • Development is neat and tidy • No complaints from surrounding industries and businesses • Sufficient containers available on site • No visible or measurable signs of pollution of the	Applicant	

PHASE OF DEVELOPMENT	OPERATIONAL			
IMPACT / ISSUE	General			
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
		environment (soils, ground and surface water)		
Noise pollution Noise levels shall be kept within acceptable limits, these are determined in terms of the relevant local by laws. Operation activities will remain within normal working hours (07:00am – 18:00pm). No work on public holidays without approval from the surrounding landowners.	Minimise chances of transgression of the acts controlling pollution	No complaints from surrounding residents and businesses		Monitor daily

PHASE OF DEVELOPMENT		OPERATIONAL		
IMPACT / ISSUE		General		
MITIGATION MEASURE	MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
Safety and Security Boundary wall must be regularly inspected and maintained to prevent any damage. All fencing on site must be managed in terms of the Fence Act No. 31 of 1963. All maintenance and repair work must be done in accordance with National Building Regulations and Standards Act 103 of 1977. Maintenance work must not be the cause of environmental damage. Any environmental damage caused must be investigated and mitigated immediately. An emergency plan (including fire management) must be developed and implemented; the relevant authority must approve this plan. Ensure that all fire extinguishers are replaced on or before their expiry dates. Ensure that pump devices are in good working order.	• Reduce the risk of potential incidences • Minimise litigation and complaints by I&AP's	• No complaints from surrounding residents and businesses	Property Owners association and ECO	As and when required

TABLE 7: PROPOSED LIGHT INDUSTRIAL DEVELOPMENT (STORAGE FACILITY) ON PORTION A OF ERF 21277, AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN CAPE, OPERATIONAL PHASE EMP (EA CONDITIONS).

PHASE OF DEVELOPMENT	OPERATIONAL	KAPPEC			
IMPACT / ISSUE	EA CONDITIONS	DEVELOPER			
MITIGATION MEASURE		MANAGEMENT OBJECTIVES	MEASURABLE TARGETS	RESPONSIBLE PARTY	FREQUENCY OF ACTION
		•	•		

15. EMP NON-COMPLIANCE PENALTIES

Environmental management is concerned not only with the final results of the Contractor's operations, but also to the standard of the day-to-day operations required to complete the works.

Penalties may be instituted for non-compliance. The penalty is over and above the cost of rectifying the problem and/or damage. Penalties will vary on a sliding scale from **R 300 to R 5 000** for non-serious to serious issues as determined by the Engineer/RE/ECO. For each subsequent similar offence the fine shall be doubled in value to a maximum value of **R 20 000**.

The Engineer together with the ECO will decide how the penalties, if any, are to be spent on measures improving the environment. Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications. The Engineer will inform the Contractor of the contravention and the amount of the fine, the amount will be deducted from the monies due in payment certificates issued under the Contract.

Maximum fines for the following contraventions by either the Contractor and/or his subcontractors may be imposed by the Engineer/ECO, as follows:

- | | |
|--|-----------------------|
| • Any persons, vehicles, plant, or materials related to the Contractors operations within the designated boundaries of a “no-go” area | <u>R 5 000</u> |
| • Damage to trees not specified to be removed | <u>R 3 000</u> |
| • Persistent and unrepaired oil leaks from machinery/ not using a drip tray to collect waste oil and other lubricants/not using specified absorbent material to encapsulate hydrocarbon spillage/using inappropriate methods of refuelling | <u>R 3 000</u> |
| • Litter on site associated with construction activities | <u>R 2 000</u> |
| • Deliberate lighting of illegal fires on site | <u>R 1 000</u> |
| • Burning of waste without a permit | <u>R 2 000</u> |
| • Insufficient amount of ablution facilities on site | <u>R 500</u> |
| • Employees not making use of the site ablution facilities | <u>R 300</u> |
| • Failure to implement specified noise controls | <u>R 1 000</u> |
| • Failure to empty waste bins/ skips/ litter structures on a regular basis | <u>R 2 000</u> |
| • Inadequate dust control or failure to apply dust suppression | <u>R 2 000</u> |
| • Any water abstraction activities from a watercourse without approval | <u>R 5 000</u> |
| • Inadequate handling of bitumen | <u>R 3 000</u> |
| • Inadequate handling of concrete | <u>R 2 000</u> |
| • The spoiling of materials outside the approved areas | <u>R 5 000</u> |

Any activity, that in the reasonable opinion of the Engineer, RE and ECO, constitutes a deliberate contravention of the requirements of the specifications relating to environmental matters

R 4 000

**PROPOSED LIGHT INDUSTRIAL DEVELOPMENT
(STORAGE FACILITY) ON PORTION A OF ERF 21277
AALWYNDAL, MOSSEL BAY MUNICIPALITY, WESTERN
CAPE.**

**WASTE, WATER USE AND ELECTRICITY CONSUMPTION
MINIMIZATION AND MANAGEMENT PLAN**

DEA&DP Ref: 16/3/3/1/D6/29/0031/24

Prepared for:

Dream Supreme Properties 14 cc
PO Box 834
Hartenbos
6520

Prepared by:

Kapp Environmental Consultants (Pty) Ltd
9 Wassung Street
Mossel Bay
6506
Cell: 082 675 5233
E-Mail: renier@kappec.co.za



01 November 2024

REFERENCES

DEA&DP, 2003. A Waste Minimization Guideline Document for Environmental Impact Assessments (2003) by Common Ground in association with deVilliers Brownlie Associates.

National Environmental Management Act 107 of 1998 (NEMA)

Stellendale Village DRAFT Green Building Guidelines by Steadfast Greening, 2008

1. INTRODUCTION

The Client, Dream Supreme Properties 14 cc, will use this Waste, Water Use and Electricity Consumption Minimization and Management Plan to minimize and manage waste and wastage, electricity consumption and water use in the design, construction and operational phase of the proposed activities as a tool in managing the impacts of the proposed development after environmental approval from the Department of Environmental Affairs and Development Planning (DEA&DP) in terms of the new Environmental Impact Assessment Regulations (GN R. No. 327, GN R. No. 325 and GN R. No. 324 [7 April 2017]) under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which replaced the 2014 regulations (GN R. No. 982, R. No. 983 and R. No. 985 [December 2014]).

This document is based on the Waste Minimization Guideline Document on the DEA&DP website (by Common Ground in association with de Villiers Brownlie Associates) and the Stellendale Village DRAFT Green Building Guidelines by Steadfast Greening.

The regulation of activities that have a significant impact on the environment as well as the protection of the environment itself, have improved significantly in the last decade and a half with the promulgation of the Constitution, and general environmental legislation, such as the National Environmental Management Act (NEMA) and the National Water Act. One of the main impacts of human activities on the environment is that of waste disposal (Common Ground & deVilliers Brownlie Associates, 2003).

Waste may be in solid, liquid or gaseous form. It may be benign, toxic, or hazardous. The management of hazardous waste, with associated negative impacts on the environment, is generally covered by legislation. The longer term, cumulative impacts of relatively benign waste disposal is poorly addressed by our laws (DEA&DP Waste Minimization Guideline, 2003).

“Waste” in this document is primarily interpreted as solid waste. Waste minimization per se is not specifically legislated in South Africa at present. Similarly, there are no legal instruments that can be used to enforce reduction in wastage of electricity and water although the National Water Act No 36 of 1998 prohibits wastage of water without specifying what wastage means and how this

section will be enforced. However, there are a number of laws and overarching policies that are aimed at sustainable development and sound environmental management, and which are relevant to waste and wastage minimisation.

Wastage is defined in the Oxford Dictionary as...“expend or employ to no purpose or for inadequate result, use extravagantly or ineffectually, squander”. Part of the obligation to protect the environment would be to limit wastage of resources. Thus limiting wastage of water would fall within this obligation. So too would be limiting the wastage of electricity that results in pollution at the site of electricity generation (Common Ground & deVilliers Brownlie Associates, 2003).

2. WASTE REDUCTION

2.1 BACKGROUND TO WASTE REDUCTION

A key element of environmentally friendly buildings is to promote awareness and change behaviour around all aspects of waste management.

Waste minimisation can therefore be assessed as a component of waste management that aims to reduce the amount of waste, which has to be disposed of. In this regard waste minimisation is aimed at tackling the causes and sources of waste rather than just trying to address and mitigate the symptoms (e.g. through treatment). Waste management can be depicted as a hierarchy, as shown in Figure 1 below. In the hierarchy, source reduction options are considered as a priority, followed by re-use and recycling options. Treatment options are considered only when acceptable waste minimisation techniques have been investigated. As a “last resort” disposal should be considered.

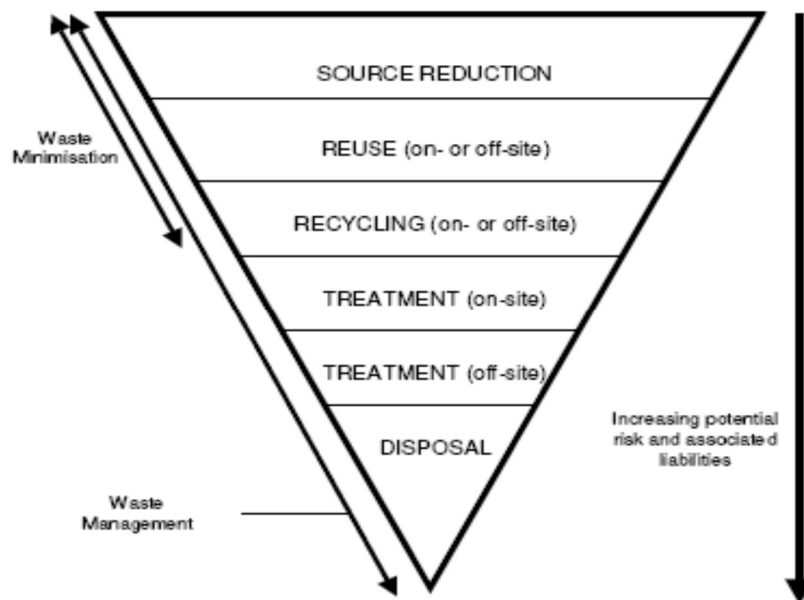


Figure 10 Waste Management Hierarchy (Common Ground & deVilliers Brownlie Associates, 2003).

Waste Management, therefore, involves interventions to minimize waste generation in the planning, operation, management and maintenance of the built environment, and includes waste prevention, waste reduction, waste re-use, and recycling.

A further aspect is minimizing the environmental and health impacts by reducing toxicity, and ensuring environmentally sound treatment and disposal of remaining waste. The ultimate is however to promote a zero waste concept where all the related materials can be used again over the longer term with life-cycle assessments, cradle to cradle.

Zero Waste is a goal, a process, a way of thinking that is different to the way we think about products and processes. Not only is Zero Waste about recycling and avoiding waste going to landfill, it also changes production and distribution systems to prevent waste from being manufactured in the first place. It is a way of changing how materials flow through society in such a way that, as in nature, they flow in a closed loop – resulting in efficient use of material and other resources, such as energy and water (Steadfast Greening, 2008).

Zero Waste therefore aims to:

- Prevent rather than manage waste.
- Turn resource that would normally be thrown away into economic value instead of loss.
- Support sustainable development.
- Follows natural processes where everything is recycled.
- Promote the efficient flow of energy and materials.

It is thus essential to ensure that waste avoidance is built into the process at a design phase, referring to the construction and maintenance of the building. This will be done through selection of the appropriate building materials and managing the construction process in a responsible manner.

Opportunities for the separation of waste at source must also be built into the design of the building to encourage people to recycle their waste.

2.2 BENEFITS OF WASTE REDUCTION

The benefits of waste reduction as described in the DEA&DP Waste Minimization Guideline (Common Ground & deVilliers Brownlie Associates, 2003) include the following benefits.

2.2.1 FINANCIAL BENEFITS

- Reduced transportation costs for waste materials (less transportation because of less material wasted). This includes transportation to and from the site and disposal.
- Reduced disposal costs of waste materials (disposal costs are likely to rise significantly in the near future)
- Reduced purchase quantity and price of raw materials by waste minimisation.
- Reduced purchase price of new materials when considering reuse and recycling (depending on materials).
- Increased returns can be achieved by selling waste materials to be reused.

2.2.2 ENVIRONMENTAL BENEFITS

Some of the environmental benefits are:

- Reduced quantity of waste generated.
- Efficient use of waste generated.
- Minimised amounts of waste disposed of at landfills, which therefore extend the lifespan of landfills.
- Reduced environmental effects as a result of disposal, e.g. noise, pollution.
- Reduced transportation of waste to be disposed of (hence less noise, vehicle emission pollution, and energy used).

2.2.3 SOCIAL BENEFITS

- Increased site safety.
- Increased work efficiency.
- Enhanced company image.
- Job creation through recycling initiatives.

2.3 GENERATED WASTE

2.3.1 EXAMPLES OF WASTE GENERATED DURING CONSTRUCTION:

- Waste wood from cutting structural elements, broken structural elements and damaged elements from incorrect storage
- Damaged or off-cut steel components
- Off-cut electrical wiring and cabling
- Broken or off-cut tiles
- Packaging
- Off-cut and broken bricks
- Surplus material from cut and fill activities
- Spoil from cut and fill activities
- Off-cut, or broken conduit and plumbing
- Off-cut or damaged insulation elements
- Surplus paint and paint containers
- Broken or redundant plant and equipment
- Surplus concrete, cement and grouting
- General waste

3. WASTE MINIMIZATION PLAN

3.1 WASTE MINIMIZATION DURING CONSTRUCTION

Issue	Minimization Plan
General Considerations	
Material Selection	The Client will, for as far as it is economically feasible select: • materials for least waste generation during preparation and use during construction, • materials used in the construction which are durable in order to minimise maintenance or replacement, • standard materials to increase re-use/ recycling potential, • materials which are sourced locally.
Pre-Fabrication	The Client will, for as far as it is economically feasible make use of pre-fabricated components in order to minimise waste on site and permit re-use by the manufacturers of any waste generated during construction of the units.
Hazardous Substances	The Client will, for as far as it is economically feasible make use of non hazardous substances to replace hazardous substances such as replacing asbestos with fibre glass etc.
Ordering	The Client will strive to order materials “just-in-time” to avoid deterioration/ breakage during storage The Client will strive to (as far as reasonably possible) order materials only from suppliers which will take back any unused/ off-spec or broken materials favoured. The Client will strive to (as far as reasonably and economically possible) order materials in bulk to reduce packaging but without over-ordering resulting in waste generation.

	Suppliers which take back the packaging will be favoured by the Client.
Load and unloading of materials	The construction site staff will be trained to load and unload materials correctly to avoid breakage and wastage.
Storing of materials	Care will be taken to ensure that materials are stored appropriately according to supplier specifications to reduce the risk of damage or deterioration.
The use of temporary structures	The Client will attempt to keep temporary structures on site to a minimum. Where unavoidable the temporary structures used on this site, will be re-used on other sites.
General	The contractors must provide and maintain a method statement for “solid waste management”. The method statement must provide information on the proposed licensed facility to be utilised and details of proposed record keeping for auditing purposes. For the disposal of clean building rubble, a General & Hazardous Waste Landfill sites can be utilized. • Waste shall be separated into recyclable and non-recyclable waste, and shall be separated as follows: Hazardous waste: including (but not limited to) old oil, paint,etc, • General waste: including (but not limited to) construction rubble, • Reusable construction material. Recyclable waste shall preferably be deposited in separate bins. The contractor is advised that “Collect-a-Can” collect tins, including paint tins, chemical tins, etc. and “Consol” collect glass for recycling.

	Any illegal dumping of waste will not be tolerated. Proof of legal dumping must be able to be produced on request. Bins must be clearly marked for ease of management. All refuse bins must have a lid secured so that animals cannot gain access. Under no circumstances may any waste be burnt. All waste must be managed in accordance with the Minimum Requirements for waste disposal by landfill 2nd ed 1998. The minimum requirements for easy access by waste disposal service trucks will be met in order for vehicles to effectively access the waste. All waste must be disposed of at a registered site. It is the management bodies' responsibility to ensure that the contracted party responsible for waste disposal disposes of the waste at the correct facility. This facility refers to a General & Hazardous Waste Landfill site as referred to by the City of Cape Town Municipality Solid Waste management Department. These landfill sites are permitted by Department Water Affairs and Sanitation with operating numbers in place.
	The use of building materials which result in least amount of waste generated (e.g. pre-fabrication as opposed to on-site construction/ fabrication) will be favoured by the Client as far as economically feasible. Materials will be re-used on site wherever possible. Off-cuts and equipment will be re-used on other jobs wherever possible.

4. WATER USE AND MANAGEMENT PLAN

4.1. WATER USE MINIMIZATION AND MANAGEMENT DURING CONSTRUCTION AND OPERATION

CONSTRUCTION PHASE	
Issue	Management Plan
General Considerations	
Ablutions	The Client will re-use as much of the water from wash basins on site as possible.
Concrete and cement preparation	The Client /contractor will order concrete and cement from supplier for as far as possible. The mixing area should not contain any liquids, to prevent contamination of soil and storm water
General cleansing operations	All hoses will be fitted with trigger gun spray nozzles to limit wastage. Dry sweeping will be used (for as far as possible) in preference to washing of areas and equipment. Wherever possible biodegradable and non-toxic detergents, soaps and degreasers will be used. Regular Maintenance of equipment will be conducted in order to prevent wastage.

5. ELECTRICITY MINIMIZATION PLAN

5.1. ELECTRICITY MINIMIZATION AND MANAGEMENT DURING CONSTRUCTION AND OPERATION

CONSTRUCTION PHASE	
Issue	Management Plan
General Considerations	
Lighting	The installation of energy efficient lighting is encouraged. Efficient street lighting such as Light Emitting Diode (LED) should be installed.
Water Heaters	Geyser blankets and pipe insulation are to be used to wrap around the geyser and hot water pipes to retain the heat. Vertical geysers are to be installed as they are more energy efficient than horizontal geysers. Geyser timers are to be installed that would automatically switch geysers on and off at certain times, thus providing hot water when needed. Solar Water Heaters and related plumbing should be installed rather than normal geysers.
General	Ceilings should be insulated to improve thermal performance in the homes/office building and storage units.

ANNEXURE 1 DECLARATION OF UNDERSTANDING BY THE CLIENT

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness 2: _____

ANNEXURE 2 DECLARATION OF UNDERSTANDING BY THE ENGINEER

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness 2: _____

ANNEXURE 3 DECLARATION OF UNDERSTANDING BY THE CONTRACTOR

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness 2: _____

ANNEXURE 4 INCIDENT AND ENVIRONMENTAL LOG

ENVIRONMENTAL INCIDENT LOG				
Date	Env. Condition	Comments <i>(Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)</i>	Corrective Action Taken <i>(Give details and attach documentation as far as possible)</i>	<u>Signature</u>

CURRICULUM VITAE

Name: **RENIER KAPP**

Name of Firm: Kapp Environmental Consultants (KAPPEC)

Position: Director

Date of Birth: 6 February 1985

Nationality: South African

Home language: Afrikaans/English

Years Relevant Experience: 15 Years

EDUCATIONAL QUALIFICATIONS

B. Environmental Management, US (2007)

KEY QUALIFICATIONS

Environmental Impact Assessments:

Undertaken numerous Environmental Impact Assessments:

- EIA for Oudrift Dam on Rooiheuwel Farm in Keinbrak;
- EIA for 2 large mixed use developments in Klipmuts consisting of numerous zonings;
- EIA for township establishment of Trekoskraal in the West Coast;
- EIA for a 400ha Eco Estate Development at the foot of the Hottentots Holland Mountain in the Helderberg Basin.
- EIA for a Hazardous material storage warehouse in Kraaifontein;
- EIA for a large scale residential development outside Paarl;
- EIA for 10ha Gouda Low-Cost Housing Development (375 units);
- EIA for Ocean View Community Partnership for affordable and subsidy housing;
- Undertaken and Project Managed numerous Basic Assessment Applications for roads, renewable energy residential, commercial, and industrial developments in the Western Cape.

Waste Management License Applications:

Undertaken numerous Waste Management License Applications:

- Waste Management License Application (Category B) for the upgrade of the Pentz Street Waste Water Treatment Works in Wellington.
- Waste Management License Application (Category B) for the upgrade of the Gouda Waste Water Treatment Works.
- Waste Management License Application (Category B) for the upgrade of the Saron Waste Water Treatment Works.

Waste Management License Application (Category B) for the upgrade of the Klapmuts Waste Water Treatment Works.

Rectification Applications:

Undertaken numerous applications according to Section 24(G) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) in order to rectify unlawful activities and illegal commencement of activities. These applications have included inter alia:

- illegal river works;
- illegal structures within 100m of the high water mark of the ocean;
- unauthorized dumping of waste;
- illegal composting plants;
- illegal vegetation clearance;

Risk Assessments

Undertaken Risk Assessments for waste sites.

Legal and other compliance audits and ECO Audits:

Undertaken a variety of environmental compliance audits, which include *inter alia*:

- Suurbraak WWTW – EMP compliance Audits;
- Kleinberg Grain Silos in Mossel Bay – EMP Compliance Audits;
- Drakenstein Municipality Bulk Water Extension – EMP Compliance Audits
- Renosterbos Lifestyle Development Construction activities – EMP compliance Audits;
- Windmeul Reservoir and Water Pipeline – EMP compliance Audits;
- Numerous other ECO Audits for Residential Developments, Commercial Developments, Pipelines and other infrastructure developments.

Training:

Conducted ECO Training to skilled and unskilled workers prior to commencement of numerous construction activities at the construction throughout the Western Cape including a number of projects in the Southern Cape.

EMPLOYMENT EXPERIENCE

Director: Kapp: Kapp Environmental Consultants (2019 – Current).

Senior Project Manager: Guillaume Nel Environmental Consultants (2011 – 2019).

- Project Management;
- Client liaison and managing output efficacy.
- Compilation and Management of Environmental Impact Assessments (EIA's), as well as Basic Assessments and other smaller projects;

Assistant Project Manager: Guillaume Nel Environmental Consultants (2009 – 2010).

Compilation and Project Management of individual Environmental Impact Assessments (EIA's), as well as Basic Assessments and other smaller projects;
Management and undertaking of legal and other environmental related compliance audits;

Environmental Manager: Guillaume Nel Environmental Consultants (2008).

Compilation and Management of Environmental Impact Assessments (EIA's), as well as Basic Assessments and other smaller projects;
Management and undertaking of legal and other environmental related compliance audits