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| **Project Name:** | ***ENVIRONMENTAL MANAGEMENT PLAN TO CONSTRUCT AND OPERATE A FUEL STORAGE AND HANDLING FACILITY (RETAIL SITE) ON PORTION A OF THE REMAINDER OF ERF 5433, WALVIS BAY, EXTENSION 19, ERONGO REGION*** |
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# 1. INTRODUCTION

According to the Environmental Management Act (2007), to construct and operate a fuel storage and handling facility (retail site) on Portion A of the Remainder of Erf 5433, Walvis Bay, Extension 19, Erongo Region are part of the listed activities for which an Environmental Impact Assessment (EIA) has to be conducted and which needs an Environmental Clearance (EC) from the Ministry of Environment, Forestry and Tourism (MEFT) before implementation of the project. The MEFT indicated that they would consider the Environmental Clearance upon the submission of an Environmental Management Plan (EMP).

The proponent (Bachmus Oil & Fuel Supplies (Pty) Ltd) appointed *Green Earth Environmental Consultants* to prepare an Environmental Management Plan (EMP) to guide the operations of the proposed project. The EMP was prepared from information gathered from the proponent (Bachmus Oil & Fuel Supplies (Pty) Ltd) and knowledge of the site (based upon several site visits) as well as from experience with EIA's and EMP's conducted for other similar operations. The assessment concluded that the project will not pose any long term or irreversible threats to the receiving or surrounding environment if the operations are conducted along the guidelines of this EMP.

The EMP included in this document contains practical measures that should be taken and maintained by the developer and manager of the proposed project in order to prevent potentially negative impacts on the environment, both from the ecological and social perspective. The EMP assigns rules, regulations and responsibilities and can be used by the MEFT and other relevant authorities as checklist to monitor compliance at the site. The idea is to minimize any negative impacts or to completely avoid it if possible, in the operation of the proposed project.

The actions stated in this document (EMP) should be diligently followed in order to maintain a safe and healthy sustainable environment for future generations residing on the land and immediate environment. The proponent is responsible to oversee that the EMP is implemented and adhered to at all time. MEFT is kindly requested to consider and approve the EMP below and to issue a Clearance Certificate.

# 2. BACKGROUND AND SITE INFORMATION

The EMP included in this document is based on the principle that the relevant authorities with the MEFT as responsible Ministry, through their Environmental Control Officer's (ECO) with the proponent of the project as responsible person, should ensure that:

- The necessary environmental authorizations and permits have been obtained and are in use.

- Open and direct communication between the proponent and Interested and Affected Parties (I&APs) with regards to environmental and ecological matters are maintained.
- Regular site inspections of constructed areas and operations is conducted to ensure compliance with the EMP of the site.
- By complying with the guidelines of the EMP, the impact on the receiving environment is kept to a minimum or avoided.
- Immediate action is taken if EMP specifications are not followed or adhered to.
- The proponent/manager of the project need to find environmentally responsible solutions.
- All new personnel/workers should be informed on the stipulations of the EMP and that environmental awareness is regarded as a high priority.
- Level of implementation and adherence to the EMP is audited on a regular basis.

There should be a clear message to the management and staff/workforce of the project that non-adherence to or non-compliance with the EMP can lead to the withdrawal of the Environmental Clearance Certificate and might lead to the closure of the project operations. It is against this background that the EMP has been drafted.

# 3. RECOMMENDATION

The following measures are recommended:

- That Bachmus Oil & Fuel Supplies (Pty) Ltd be granted an Environmental Clearance to proceed with the construction and operation of the proposed project by the Environmental Commissioner of the Ministry of Environment, Forestry and Tourism.
- The continuous monitoring of the identified impacts on the environment to be able to take preventative remedial action.
- The implementation of the Environmental Management Plan (EMP) to mitigate identified impacts which are associated with the construction and operational phase of the project.
- The consideration of green building/environmentally sustainable designs in the planning, construction and operational phases for example making use of rainwater tanks, recycling depots, etc.
- Testing of the water quality is also recommended in order to determine a baseline of the current water quality which can be used to monitor contamination which might occur from the proposed project operations and to determine if the water is suitable for use in the process. It is proposed that the water quality is monitored through annual testing and comparison with the baseline analysis.
- An Environmental Audit to be conducted on the new project a year from the date of the Environmental Clearance Certificate by an inspector (from the DEA) or an independent Environmental Practitioner to ensure that the

Environmental Management Plan has been implemented and is adhered to on a continuous basis.

- Training and induction courses should be given to the managers, workforce and employees.
- The proponent is responsible for ensuring that environmental awareness education of all employees and contractors is done satisfactorily.
- The proponent should ensure that employees and contractors are made aware of the environmental requirements of the project.
- The contractors, sub-contractors and staff should familiarize themselves with the full content of the Environmental Management Plan.
- Periodic environmental monitoring must be taken on a regular basis. This should be done to ensure compliance with all aspects of the Environmental Management Plan.
- A copy of the Environmental Management Plan should be kept at the site office and should be distributed to the manager, contractors and sub-contractors.
- Non-compliance to the measures stated in the Environmental Management Plan: Implement suitable corrective action and prevent recurrence of the incident.
- An independent environmental control officer should be appointed to monitor and review the on-site environmental management and implementation of the Environmental Management Plan.
- The environmental control officer should ensure that the impacts are kept to a minimum.
- He/she should be inspecting the site and surrounding areas regularly and should monitor an ongoing program to promote environmental awareness.
- He/she should request the removal of people or equipment not complying with the specifications of the Environmental Management Plan.
- Any areas outside the designated working zone should be considered “no go” areas.

# 4. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The proposed EMP has been drawn to give guidance to:

- Planning of future extensions or replacing of infrastructure, equipment and services **(Planning Phase)**.
- Constructing, rehabilitation and developing any infrastructure on the site **(Construction Phase)**.
- Operations concerning the daily management and running of the project and associated activities **(Operational phase).**
- Decommissioning of the project **(Decommissioning Phase).**

## 4.1. PLANNING PHASE

The location and design of the infrastructure must fit into the surroundings and the natural environment. The manager of the project must ensure that the sense of place be kept in accordance with the surrounding areas.

Construction and operation of the project are based on the assumption that it is feasible and viable. It is important that this be tested because of the work opportunities and socio-economic aspects involved. It is advised that the project be audited by an independent auditor to verify if it is feasible.

Specific actions are required to ensure the negative effects or impacts are minimized on the site. The following measures should be followed:

| 4.1.1. Addressing of Aesthetic and Visual Issues | |
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| **Responsible Person** | **Measures** |
| The Proponent, Developer or Builder | a. Infrastructure on the site must be visually pleasing namely it must be in concordance with a certain natural style since the site is in rural/natural surroundings.<br>b. The building shapes must not contrast too much of the area namely high rising buildings in future should rather be avoided.<br>c. The use of earthy colors (paint) on the infrastructure, which are in harmony with the environment, are strongly recommended.<br>d. If construction on the site is carried out, it must make use to a large extent of the natural materials namely rocks from the area, wooden poles either from already non-living trees or commercially produced poles and thatch in order not to destroy the environment.<br>e. Should there be any development regarding communication masts, solar panels, water tanks and other prominent features, it must be placed or constructed at spots that prohibits visual destruction or minimize visual impact.<br>f. Tourists or any person driving past the operations should not be able to notice visually unpleasing objects on the site.<br>g. Avoid any neon or non-earthy signs that will reduce the sense of place, rather use rustic metal or wood to construct signs.<br>h. If practical and feasible, all additional or new pipes and cables must be buried underground and not be visible to the public.<br>i. The visual character of the project should not compromise the integrity of landmarks and places of cultural and heritage significance such as heritage sites, national monuments, urban conservation areas, old buildings, special scenic areas and tourist sites of interest. |

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| | j. The project should not significantly impact on the integrity of significant views. If a proposed facility may interrupt such a view, the options to minimise the visual impact should be considered. |

| 4.1.2. Ensuring water consumption efficiency | |
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| **Responsible Person** | **Measures** |
| The Developer and Builder | a. Any further addition of lawns or cultivated gardens on the site must be limited since it makes use of sparse clean water. The cultivation or enhancements of locally adapted natural grasses which can survive the natural conditions are preferred.<br>b. Rivers and drainage systems bordering the site must be maintained and channels must be kept open to conserve the environment and flow of water.<br>c. Water efficient systems/equipment which limit the use of water or make recycling of water possible should be introduced. |

| 4.1.3. Ensuring energy consumption efficiency | |
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| **Responsible Person** | **Measures** |
| The Developer or Builder | a. Preference must be given to the implementation of energy conserving and efficient systems. Renewable energy sources like gas produced from household waste or solar should be considered to replace the current commercially supplied electricity where possible.<br>b. Devices or equipment which conserves energy must be introduced and used in the operations of the development.<br>c. Cautioned measures on how to handle electricity in the facility must be addressed to everyone working or residing on or near the facility, so as to conform to safety regulations in workplace. |

| 4.1.4. Limiting creation of solid waste | |
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| **Responsible Person** | **Measures** |
| The Manager | a. Consumables and containers which can be recycled or which are biodegradable must be introduced in order to limit the creation of solid waste which has to be taken out of the area to be managed and handled at another site.<br>b. Hazardous waste should be transported to the Kupferberg landfill site.<br>c. Concepts like pollution control, material substitution and maximization on recycling content in order to reduce waste generation and disposal should be introduced. |

| 4.1.5. Health and Safety of the Workforce | |
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| **Responsible Person** | **Measures** |
| The Builders, Workforce, Constructors and Developers | a. The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment).<br>b. A health and safety officer should be employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the work place.<br>c. The introduction of external workers into the area is sometimes accompanied with criminal activities posing security risks for neighbouring portions/farms therefore security measures should be introduced to prevent such activities for example a security guard can be employed to safeguard the property.<br>d. The welfare and quality of life of the neighbouring land/farms and workforce needs to be considered in order |

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| | for the project to be a success on its environmental performance.<br>e. Conversely, the process should not affect the overall health of persons related to the project including the neighbours. |

## 4.2. CONSTRUCTION PHASE

Construction is generally characterized by various activities that will take place on the site namely landscaping of the site, earthworks for the construction of bulk services and infrastructure, construction of additional buildings, removal, relocation and planting of trees and shrubs and installation/rehabilitation of sewer and water pipelines. All these activities have an unavoidable effect on the natural environment. Various actions must thus be undertaken to minimize the effect on the receiving and surrounding natural environment. The responsible persons in the entire process will be the proponent, the developer, project manager, subcontractors, etc. The developer takes the ultimate responsibility during the construction.

MEFT can ensure that the project operations adhere to the EMP stipulations through regular site inspections. The manager must ensure that the developer is aware of the EMP stipulations and enforces it on site. Throughout any construction it will be the Project Manager's, Quantity Surveyor's and Engineer's obligation to inspect the site at least once per month to make sure that all the mitigations measures are followed, adhered to and implemented. The Project Manager must do a final inspection and evaluation once the project is completed. The project manager must also issue the building contractor with a completion letter once he or she is satisfied that the project has been done in accordance with the Environmental Management Plan. A copy of the final letter must be sent to the Director of Environmental Affairs (DEA).

Damage to the environment during construction has a few origins that differ to large degree: accidental, negligent, spillage, vehicles, earthmoving equipment, generators, workshops and plant areas, excessive noise or heat, workers exposed to physical, chemical and ergonomic hazards. There are mitigation measures that must be followed in order to minimize or avoid damage and pollution. The following measures are based on the Ministry of Environment, Forestry and Tourism (MEFT) regulations and must strongly be adhered to:

| 4.2.1. Spillages of potentially toxic materials | |
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| **Responsible Person** | **Measures** |
| The Developer, Builders and Workforce | a. Any spillages of potentially toxic materials, whether by accident or through negligence, must be reported and the corrective action must be undertaken to 'clean' and to remove the evidence of the spillage.<br>b. Make use of design structures and transfer equipment so as to avoid spillage as far as possible.<br>c. Train the staff members on how to make use of diesel/fuel transfer and to avoid spillage. Fuel storage should be bunded.<br>d. Any spill must be cleaned up immediately by removing the spill together with the polluted soil and disposing of it at a recognized dumping site or facility.<br>e. Install oil traps in all appropriate places to collect potentially toxic materials.<br>f. When there is made use of diesel generators on site it must be placed on concrete slabs.<br>g. When a workshop is introduced, the entire work area must be lined by concrete.<br>h. Any runoff from the work areas either arising from wash downs or rainfall must be channeled into a pollution control pond.<br>i. There must be a weekly monitoring of all equipment namely a visual check; there must also be a weekly monitoring of work areas. |

| 4.2.2. Site Preparation | |
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| **Responsible Person** | **Measures** |
| The Developer and Builders | a. Before any workers, equipment or building materials are brought in; the developer must set out the entire plan. The corners of every building, walkway, driveway, parking area, water installation, power generator, etc. must clearly be marked.<br>b. The marked out area must be inspected and approved by the Engineer before any construction is started.<br>c. The building contractor must demarcate the area with metal droppers and hazard tape so that there will be no confusion about which area may be disturbed for additional development and which areas will strictly be off-limits.<br>d. Disturbance and risks related to sitting and construction should be minimized at all time. Construction activities and the site location should comply with national environment protection legislations and best practice environmental management guidelines.<br>e. Construction should be carried out in a safe and effective manner and obstruction or danger to pedestrians or vehicles caused by the location of the project, construction activity or material used in construction should be minimized. |

| 4.2.3. Building Materials | |
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| **Responsible Person** | **Measures** |
| The Developer, Builders and Workforce | a. All the materials needed for construction namely bricks, sand, cement, poles, roofing, etc., must be brought into the site from outside.<br>b. In the case of items that are not brought from a registered shop for example poles, the contractor |

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| | must ensure that the harvesting of these materials did not cause any serious impacts at the place which they came from.<br>c. Sand/rock that will be used for building should only be collected from approved sites or be commercially procured from a supplier.<br>d. No materials, including rocks for building purposes may be collected from the environmentally sensitive areas pointed out in the Environmental Impact Assessment.<br>e. The design, location, installation and operation of underground cables or ducts must be in accordance with the principles as set out.<br>f. Where underground cables or duct require the removal of protected plant species, a permit from the Ministry of Agriculture, Water and Forestry – Department of Forestry is required for the removal of such a plant. |

| **4.2.4. Facilities for Workers** | |
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| **Responsible Person** | **Measures** |
| The Proponent,<br>Developer and Builders | a. All workers that need to reside on the site while construction is in progress will have to be housed in temporary structures like tents or caravans to limit the impact on the environment. The majority of the workforce will consist of people already living in the area and therefore minimum impact on the environment is expected.<br>b. The workforce residing on the site must be provided with water, proper toilets and washing facilities.<br>c. Cooking on the site must be done on gas or open fires. When the workers make use of open fires, these must be made in a designated spot so that there will be no possibility for a veldt fire occurring.<br>d. Although the surrounding settlers collect wood in the area, construction workers working or residing on site should not be allowed to collect wood for cooking purposes. The manager or developer must |

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| | provide them with wood/charcoal preferably from intruder bush from outside sources. |

| 4.2.5. Waste Management | |
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| **Responsible Person** | **Measures** |
| The Contractor, Developer and Builders | a. Should the developers and sub contractors make use of combustible waste for example empty cement bags, it must be collected at the end of each day and be stored in a cage structure to avoid it being blown around.<br>b. All combustible and non-combustible waste must be removed from the site at least once a week to a designated and properly managed rubbish/waste dump site.<br>c. Any waste that is stored temporarily on the site must be secured in refuse bags stored in a fenced-in area to avoid it being blown into the veldt.<br>d. A temporary waste storage site or cage structure may not be set up close to any dam or any water courses.<br>e. Measures must be taken to prevent waste that attracts scavengers for example jackal or vultures.<br>f. No paint, solvents, thinners, diesel, oil or any other harmful substances may be poured onto the ground. The substances must be collected in containers and be removed from the site for proper disposal. |

| 4.2.6. Water Use | |
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| **Responsible Person** | **Measures** |
| The Developer, Builders and Workforce | a. A Waste Water Permit should be obtained from the Ministry of Agriculture, Water and Forestry if waste water will be produced. |

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| | b. Water must at all times be used sparingly in the construction period as well as in all the other phases.<br>c. All tapes, pipes and tanks that will be constructed must be maintained and managed so that they do not leak.<br>d. Water pipelines laid to the site shall be done in such a manner that the surface and natural vegetation are not unduly disturbed.<br>e. Weekly visual checks on possible spillages must be conducted.<br>f. Effluent water from washing facilities must be disposed of in a properly constructed French drain/storage/septic tank that must be located as far as possible, but not less than 50 meters from a stream, river, pan, dam or borehole.<br>g. French drains may only collect domestic type wash water, any effluent containing oil, grease or other industrial substances must be collected in a suitable receptacle and must be removed from the site, it could either be for resale or for appropriate disposal at a recognized facility.<br>h. There must be weekly inspections of drains.<br>i. These drains must be demolished after construction and the sites must be cleaned and restored to its natural state.<br>j. If concrete reservoir walls are built, it must be painted in a camouflage colour to aid in concealing it.<br>k. When reservoirs are built, it must be covered to reduce evaporation.<br>l. If practically feasible, no reservoirs must be visible from the main road.<br>m. There must also be weekly visual checks of the reservoirs and it must be supervised on site by the managers.<br>n. Water must be recovered if used for cutting, cooling or washing.<br>o. The workforce must be advised to use water sparingly for human consumption.<br>p. Water consumption must be checked on a three monthly basis. |

| 4.2.7. Odour | |
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| **Responsible Person** | **Measures** |
| The Workforce, Builders, Contractors and Residents | a. All sewage drainage pipes to be equipped with water seals by means of traps and as per the SANS 10252:2 design specifications (South African Bureau of Standards, 1993).<br>b. Good housekeeping. This will generally include daily removal and processing of solid waste by the operator. |

| 4.2.8. Wildlife | |
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| **Responsible Person** | **Measures** |
| The Workforce, Builders, Contractors and Residents | a. No wild animals on the site may be trapped or killed for any reason whatsoever by the workers, builders, contractors or residents. |

| 4.2.9. Fuel, Transport and Storage | |
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| **Responsible Person** | **Measures** |
| The Vehicle Drivers, Builders, Contractors | a. Vehicles that transport materials to and from the site must be road worthy.<br>b. All drivers that transport materials must have a valid driver's license and must at all times adhere to traffic rules and regulations.<br>c. Vehicles carrying loads must be properly secured in order to completely avoid items falling off the vehicle at any time.<br>d. The materials used in the construction process for example cement, bricks, poles, etc., must be stored at a central storage area on the site in order that the site be neat and orderly and to avoid a situation where materials are lying all over the place.<br>e. Fuels, paints, solvents and chemicals must be stored in watertight containers that will ensure it cannot react with each other or be spilled onto the ground. |

| 4.2.10. Vehicles, Trucks, Roads and Tracks | |
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| **Responsible Person** | **Measures** |
| The Vehicle Drivers, Builders and Contractors | a. Any haphazard driving of any vehicles where there are no existing routes must be avoided.<br>b. Vehicles, trucks and earthmoving equipment with headlights must switch their headlights on at all times.<br>c. No vehicles or trucks that move in the area may exceed 40km/h with warning, and speed signs must be positioned at relevant locations.<br>d. All the personnel responsible for the driving of transport vehicles must be in possession of a valid driver's license. |

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| | e. No littering is allowed along the road, dumping of waste and scrap, etc. and all drivers must be made aware of this.<br>f. Daily or weekly visual checks are required and all drivers must be supervised.<br>g. The safety of surrounding residents and land users, other motorists and animals should not be compromised by the vehicle associated with the constructional operation.<br>h. Traffic control measures should be taken during construction in accordance with the traffic control regulations. |

| **4.2.11. Vegetation** | |
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| **Responsible Person** | **Measures** |
| The Builders, Contractors and Workforce | e. There must be an overall preservation of vegetation communities to ensure minimal disruption of important vegetation communities and valuable plant specimens.<br>f. At all times, clearance of vegetation for firewood must be avoided.<br>g. Alternative fuel and/or power sources must be made available namely paraffin stoves and diesel-driven generators if workers are accommodated on the site.<br>h. No trees or shrubs must be damaged for the purpose of obtaining firewood.<br>i. Daily inspections must be carried out and weekly checks whether the stock of alternative sources is sufficient.<br>j. The developers or constructors must ensure the maximum use of local plant material for rehabilitation processes.<br>k. Before new site construction begins, the upper level of the soil must be stripped and stockpiled separately so that this layer can be utilized in the rehabilitation process.<br>l. There must also be a visual check on the wind erosion on a monthly basis. |

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| | m. Disturbance of flora and fauna should be minimized during construction and vegetation replaced to the satisfaction of the responsible authority at the conclusion of work. |

| 4.2.12. Fauna | |
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| **Responsible Person** | **Measures** |
| The Developers, Constructors, Residents and Workforce | a. No hunting and trapping of resident animals will be allowed on the site.<br>b. The developers or constructors must fence off waste pit storage areas to prevent animals from falling in or getting entangled in waste.<br>c. The fences must be sufficient to control the access of large and small animals.<br>d. There must be weekly visual checks of the fences and staff must report to the managers. |

| 4.2.13. Noise | |
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| **Responsible Person** | **Measures** |
| The Workforce, Contractor and Builders | a. If a generator is used, it must be positioned away from neighbours and must have boarding to help suppress noise.<br>b. There must be limited impacts on adjacent settlements and on the workforce.<br>c. There must be a weekly noise check of the generator and other equipment namely of trucks and construction machinery. |

| 4.2.14. Dust | |
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| **Responsible Person** | **Measures** |
| The Developers, Constructors and Builders | a. The impact of dust on the air quality in general and on the fauna and flora must be limited.<br>b. The general speed limit on the construction site must be kept below 40km/h to limit dust generated by construction traffic.<br>c. There must be daily visual monitoring of transport activities and dust generation in the area. |

| 4.2.15. Visual Impacts | |
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| **Responsible Person** | **Measures** |
| The Proponent, Developer, Constructor and Builders | a. The height of the supporting buildings of the project must be in line with the design proposal to ensure that the infrastructure is aesthetically pleasing. Waste and stockpile dumps must not be visible from the road or neighbours.<br>b. The developer should ensure that new structures on site blend in with the surrounding landscape.<br>c. The design and architectural concepts proposed in the planning phase must be adhered to and implemented to ensure that the project is in harmony with the surrounding natural environment. |

| 4.2.16. Historical, archaeological and cultural heritage | |
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| **Responsible Person** | **Measures** |
| The Contractor, | a. No archaeological or cultural heritage sites had been identified or observed during the environmental |

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| Developer and Builders | assessment. However the developer and his sub contractors must carefully examine on the area before any construction is undertaken.<br>b. If any archaeological or cultural heritage sites are found on the site, the manager must immediately advise the National Monuments Council to ensure that steps are taken for the preservation of the site or artefacts. |

| **4.2.17. Accommodation and Sanitation** | |
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| **Responsible Person** | **Measures** |
| The Constructors, Developers and Builders | a. There must be no camp or office site located closer than 50 meters from any spring, river, dam or pan.<br>b. If space is required for a camp or office site, it must be kept to a minimum.<br>c. Workers may make use of the existing toilet facilities on the site. |

| **4.2.18. Rehabilitation after completion of construction phase** | |
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| **Responsible Person** | **Measures** |
| The Builders, Workforce, Constructors, Developers and Residents | a. Before any final rehabilitation is started on the site, the Ministry of Environment, Forestry and Tourism must be advised to set certain terms and conditions.<br>b. Qualified or accredited personnel from the constructing or developing companies must refill pits alternately with waste and not saleable stockpiled blocks and smaller fragments of larger blocks.<br>c. Refilled rock waste must be covered with saved topsoil and complemented if necessary by scraping the area adjoining the pit on the condition that no vegetation is cleared for this operation. |

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| | d. All rehabilitated areas must be monitored over a 4 year time period from the onset of the rehabilitation procedures. (The frequency of monitoring suggested is dependent on satisfactory performance. If however the requirements are not being met, the frequency of the monitoring must be increased).<br>e. Unwanted materials and all waste namely domestic or industrial must be collected. Remaining domestic waste on site must be collected and transported to a recognised disposal facility.<br>f. Waste material must be collected in drums and transported to a recognised disposal facility as well.<br>g. All weedy species present on the site must manually be removed.<br>h. Monitoring must be conducted when grasses are flowering.<br>i. Upon the completion of all construction activities, remove workshops, surrounding fencing, generators and any scrap materials in the vicinity of the work area.<br>j. Seal all petrol, diesel, oil and grease containers and remove it from the site to a recognised storage facility.<br>k. Break up all unnecessary concrete slabs and structures on the site and transport the fragments to a suitable site for disposal or dump it in one of the pits. |

| **4.2.19. Health and Sickness/Disease** | |
|---|---|
| **Responsible Person** | **Measures** |
| The Builders, Workforce, Constructors, Developers and Residents | a. Any large project has the potential to increase the rate of HIV/AIDS infection, especially during construction as a large workforce from outside the area is brought in for a period, without their families, to work on the project. That impact cannot be realistically assessed, but mitigation measures are recommended, namely instruction to all personnel on HIV/AIDS education, and making condoms readily available at little or no cost.<br>b. It can be expected that HIV/AIDS may have an impact on the project because labourers might be lost to |

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| | this disease. This results also in a loss of skills, so that training programmes will need to be ongoing.<br>c. The workforce should receive an induction course on awareness and spreading of HIV/AIDS.<br>d. The workers should be informed that prevention is better than cure and condoms should be made available to the workers as mentioned above.<br>e. The Ministry of Health and Social Services can be consulted to inform the workers of the dangers regarding the disease.<br>f. HIV/AIDS's negative impacts/aspects should be discussed and the workers should know the dangers regarding the disease for instance sickness, loss of energy and eventually death. |

There must be photographic evidence at different rehabilitated places with a camera providing dates on the prints. These photographs must be taken every year around the same period at the same places.

## 4.3. THE OPERATIONAL PHASE

Steps to be taken in the daily management and running of the proposed project are stated in the following section. To ensure that the project is operated on an environmentally sustainable manner the following **general guidelines** are included in the EMP:

a. The project must be managed with minimal disturbance to the surrounding natural environment.
b. It must be ensured that guests/clients to the site behave in an appropriate manner that does not impact negatively on the environment, wildlife and local communities.
c. The conservation of the natural and human environment must be regarded as high priority.
d. An “environmental friendly behavior” must be cultivated and maintained amongst all people involved in the operation of the project activities.
e. The job description for the manager must include his/her responsibilities and duties towards the implementation and adherence to the EMP.

The following specific environmental management issues which require daily operational attention from management and staff are included in the EMP:

| 4.3.1. Human Waste Management (Sewage) | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Developer, Constructor and Builders | a. All the toilets must be flush-type toilets and should be linked to their own French Drain/septic tank.<br>b. Notices must be placed in the toilets indicating that staff members or workers should not flush foreign objects down the toilet to ensure a healthy environment and the sustained functioning of the sewer system. |

| 4.3.2. Storage of Raw Materials | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent and Manager | a. Smelly products should be managed in order that it will have a limited impact on the surrounding neighbours.<br>b. The storage areas should be clearly marked and have clear/highly visible instructions on procedures to be followed in the handling and in case of spillages or other emergencies.<br>c. The handling, operations and storage areas of the project should be hygienically managed to prevent the breeding of flies and the generation of bad smells. |

| 4.3.3. Management of Waste Water | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent and Manager | a. The possibility of leakages at the project must be managed by ensuring that the condition of the pipelines and channels are continuously visually monitored by the manager and staff members.<br>b. The staff must monitor and limit water consumption as efficiently as possible.<br>c. Staff members must not have lawns or gardens that need to be watered (small vegetable gardens are permitted on the site).<br>d. All pipes must be well maintained and leaks must be repaired immediately.<br>e. All taps must be turned off after it had been used.<br>f. A water meter must be installed and it must be checked regularly to keep a register of water consumption and to monitor trends.<br>g. Special care should be taken to prevent chemicals from washing/leaching into surface or groundwater systems.<br>h. During operations, it should be ensured that the conditions as stated under the Waste Water Permit obtained during construction are adhered to at all times. |

| 4.3.4. Energy Management | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Constructor, Builders, Manager and Residents | a. Electricity must be obtained from approved electrical suppliers like NamPower to ensure efficiency of generation and use as well as sustainability of supply.<br>b. Gas must be used as alternative to electricity in kitchens due to its efficiency and low pollution factor. |

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| | c. They may only use a generator as emergency source of electricity as continued operation thereof normally creates additional noise, require the bulk storage of fuel and oil which can have a negative impact on the environment if not managed properly.<br>d. When fires are used on the site, the workforce must make use of alien-invasive wood that is readily available for example wood that comes from bush encroaching species for example *Acacia melifera*. The workers must avoid using Mopani, Leadwood or other species that might be harvested unsustainably.<br>e. The workers may not buy wood from the local people since that might lead to increased deforestation by cutting down protected species or the natural forests. |

| **4.3.5. Nature Conservation** | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and Residents | To sustain the natural attributes on the site, it needs to be preserved and protected to the best of their abilities. The manager of the development activities has a key responsibility in protecting the environmental aspects on the site and the following measures should be taken:<br><br>a. There must be adequate waste management control.<br>b. There must be adequate water management control.<br>c. The workforce/manager/proponent must refrain from planting alien plants.<br>d. A general environmental awareness must be established amongst staff members/workers and visitors. |

| 4.3.6. Maintaining Sense of Place | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and Residents | Sense of place is seen as the style of the area, the atmosphere present when entering the site and the general "vibe" of the place. The "sense of place" normally differentiates one area from the other and therefore management must avoid the following:<br><br>a. They may not make use of any inappropriate décor for example bright or clashing colors, unattractive murals or art, unnecessary statues, etc.<br>b. No shabbiness may be experienced on the site; management must make sure that they abstain from untidiness, un-emptied ashtrays, rubbish bins etc.<br>c. The manager must repair and maintain all infrastructure since un-repaired infrastructure creates a poor impression.<br>d. Waste must be properly managed on the site; visitors and residents may not smell rubbish bins. The manager must keep drains clean in order to avoid unpleasant smells.<br>e. The site may not have many signs or objects that distract tourists driving past the site from the natural beauty of the area.<br>f. No scrap metal for example old vehicles or equipment may lie around in various states of disrepair, the site must be clean and neat.<br>g. The manager may not allow overcrowding at the site since this will destroy sense of place in a way that it will takes away the feeling of exclusivity.<br>h. There may be no people loitering around at the site, whether visiting staff or looking for work. |

| 4.3.7. Community Relations | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and Residents | a. The manager must have sound relations with communities in the vicinity.<br>b. They may not damage any cultural or archaeological sites.<br>c. They must employ as many local people as possible for all levels of operation.<br>d. They must make use of dispute resolution methods and labour practices that are within the law and cultural norms.<br>e. All staff must be trained in order that they have the knowledge to do their work properly.<br>f. The manager must provide opportunities for career advancement and skills development. |

| 4.3.8. Occupational Health & Safety Issues & Hospital Services | |
|---|---|
| **Responsible Person** | **Measures** |
| The Workforce and Residents | a. Potential accidents may require the use of emergency services and hospital facilities nearby.<br>b. Personnel on site should be trained in handling emergencies such as response to fire, accidents etc.<br>c. There should be careful planning of emergency procedures.<br>d. Training in first aid and emergency response to employees on site should be done.<br>e. The Labour Act (No. 6 of 1992) makes certain provisions with regard to occupational health and safety, e.g. in relation to hazardous substances.<br>f. In particular it is expected that workers will need to be protected against dust and noise in the work place. |

## 4.4. DECOMMISSIONING/CLOSURE PHASE

The decommissioning phase normally follows the operational phase. This is a site-specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of this project and to detail remediation, site control, and monitoring activities that will continue once the project/infrastructure is no longer required/needed.

The decommissioning phase:

- Provide effective, site-specific, and implementable procedures and mitigation measures to monitor and control environmental impacts throughout this phase of the project, such that the related activities do not adversely impact amenity, traffic, or the environment in the surrounding area.
- Establish long-term management of the project site for its next intended use, detailing plan for site assessment, remediation of contamination, and ecological restoration activities.
- Eliminate the long-term liability issues related to the site for the proponent or owner of the facility or project site.

The decommissioning/closure of the project is not anticipated. However, should this be required for any reason, the following conditions are generally required.

| 4.4.1. Equipment | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and the Environmental Control Officer | a. An investigation on the soil and groundwater contamination must be conducted to determine the presence, nature and extent of any contamination. This will provide information as to the current status of the site in terms of the level of contamination, which will influence the level or type of remediation that needs to be undertaken.<br>b. Prior to the infrastructure being destroyed, all residue products must be carefully removed for recycling or safe disposal.<br>c. Solid materials must be used for filling. Only clean soil should be used for filling purposes. |

| 4.4.2. Stormwater and Wastewater Management | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and the Environmental Control Officer | a. Water used for flushing the pipes and tanks must be disposed safely if it is not suitable for disposal via the sewer system. The relevant department must be contacted with regard to the discharge of water containing waste to the sewer system.<br>b. The water containing waste must pass through a separator before discharge could be allowed.<br>c. Any water containing waste should not contaminate clean storm water. |

| 4.4.3. Waste Management | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and the Environmental Control Officer | a. Solid waste generated from the removal of the tanks must be handled according to the precautionary principle meaning that waste (including soils, metals and other material) should be treated as hazardous unless proven otherwise.<br>b. Contaminated soil and other waste material must be disposed of at an authorized/permitted landfill site.<br>c. Waste must not be allowed to be stockpiled on the site for extensive periods but must be disposed of as generated/soon as possible.<br>d. If waste material is stockpiled temporarily on site, it must be adequately protected from the environment to prevent leaching of potentially harmful contaminants. |

| 4.4.4. Spillage | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and the Environmental Control Officer | a. Spillages during the decommissioning must be reported to the relevant authorities. |

| 4.4.5. Remediation | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager and the Environmental Control Officer | a. Clean-up or remediation of any contamination must be done.<br>b. The owner of the land, the person in control of land or the person who occupies or uses the land on which pollution has occurred is not absolved from the responsibility of any further and/or associated pollution arising from this property.<br>c. Should there be a risk to downstream users or the environment from this site in the future, it would be requested that further remedial measures be instituted at this site. |

| 4.4.6. Site Rehabilitation | |
|---|---|
| **Responsible Person** | **Measures** |
| The Proponent, Manager, Contractor and the Environmental Control Officer | a. It should be ensured that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during the construction and operation and decommissioning be removed with minimum damage to the surrounding and receiving area or environment.<br>b. The site should be cleaned and cleared to the satisfaction of the ECO.<br>c. In the case of accidental spills of oil or chemicals in the construction camp, the affected soil should be dug out and removed from the site for disposal at a hazardous waste site and replace with fresh topsoil. |

| 4.4.7. Health and Safety of the Workers | |
|---|---|
| **Responsible Person** | **Measures** |
| The Contractor, Builders, Workforce, Constructors and Developers | a. The safety and security of labourers in the decommissioning phase of the project are required and of high importance.<br>b. The Contractor shall comply with all standard and legally required health and safety regulations as promulgated under the Occupational Health and Safety Act and Labour Act and associated regulations.<br>c. The Contractor must provide and maintain personal protective equipment and facilities to employees working with hazardous chemical substances.<br>d. The Contractor shall provide a standard first aid kit at the site and/or at additional identified locations where needed.<br>e. Disturbed soils, slopes and areas of open excavation must be minimised to avoid wind erosion.<br>f. A health and safety officer should again be employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the work place.<br>g. Conversely, it is anticipated that the process should not affect the overall health of persons related to the project including the neighbours. |

# 5. ENVIRONMENTAL STATEMENT/AGREEMENT

After all assessing was done and information available was reviewed, the conclusion was reached that the site of land allocated namely Portion A of the Remainder of Erf 5433, Walvis Bay, Extension 19, Erongo Region, is suitable to be used as it will have a low significance impact rating. The project will also not have a large negative impact on the environment, and it is therefore recommended to proceed with the process. The activities associated with the project will exert a general low impact on the environment and are easily manageable if the impact on the environment is mitigated through the implementing of the Environmental Management Plan (EMP) as proposed in this document. Management actions prescribed and recommended in this EMP are designed to minimize or manage the impacts exerted by the activities and operations and the staff members working/residing on the site.

It should however be noticed that the management activities should further be strengthened with continuous and well orchestrated monitoring of the implementation of the given EMP. The manager needs to understand the severity of the situation and all efforts should be made to ensure that the message is conveyed to the workforce and visitors.

It should further be noted the proposed EMP will have little or no value in managing the impacts of the activities on the environment if it is not implemented by the proponent and not monitored by the responsible authorities. **It is thus suggested that the level of implementation of the EMP is audited at regular intervals by the Environmental Control Officer of the MEFT in order to ensure that remedial actions are taken on time and on a continues basis.**

The Ministry of Environment, Forestry and Tourism is herewith requested to accept and approve the EMP to construct and operate a fuel storage and handling facility (retail site) on Portion A of the Remainder of Erf 5433, Walvis Bay, Extension 19, Erongo Region and to issue the site with an Environmental Clearance Certificate.