

**UPDATED**

**ENVIRONMENTAL MANAGEMENT PLAN  
(EMP)**

**EXISTING OLUZIZI SERVICE STATION  
IN OUTAPI, OMUSATI REGION**



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# 1. INTRODUCTION AND BACKGROUND

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An Environmental Management Plan (EMP) has been commissioned by Oluzizi Luxury Investments Number Two Cc. for the existing Oluzizi fuel retail facility in Outapi, Omusati Region. The EMP serves as a managing tool for the continued operations and possible decommissioning activities of the existing service station.

Oluzizi Service Station was constructed in 2014 and has been in operation since then. In accordance with the requirements of the Environmental Management Act, 2007 (Act No. 7 of 2007) and its regulations that were gazetted, an EIA was conducted for the development in 2013 and an ECC was subsequently issued for the site.

Unfortunately, the original certificate issued cannot be found to date, nor is there any copy of the ECC available. This document(s) seems to have been misplaced or lost. Records of the ECC are however, expected to be in MEFT's archives. Environam Consultants Trading (ECT) was appointed to undertake the necessary activities to enable a renewal application for the ECC with the Environmental Commissioner as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

The EMP serves as a guiding tool for the contractors and workforce on their roles and responsibilities concerning environmental management on site, and also provides an environmental monitoring framework for all project phases of the development. This environmental management plan aims to take a pro-active route by addressing potential problems before they occur. The EMP acts as a stand-alone document, which can be used during the various phases of the development.

The purpose of the EMP is to:

- ✓ Train employees and contractors with regard to environmental obligations.
- ✓ Promote and encourage good environmental management practices.
- ✓ Outline responsibilities and roles of Oluzizi Luxury Investments Number Two Cc and the contractor in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ Develop waste management practices.
- ✓ Prevent all forms of pollution.
- ✓ Protect the natural environment.
- ✓ Prevent soil and water erosion.
- ✓ Comply with all applicable laws, regulations and standards for environmental protection.

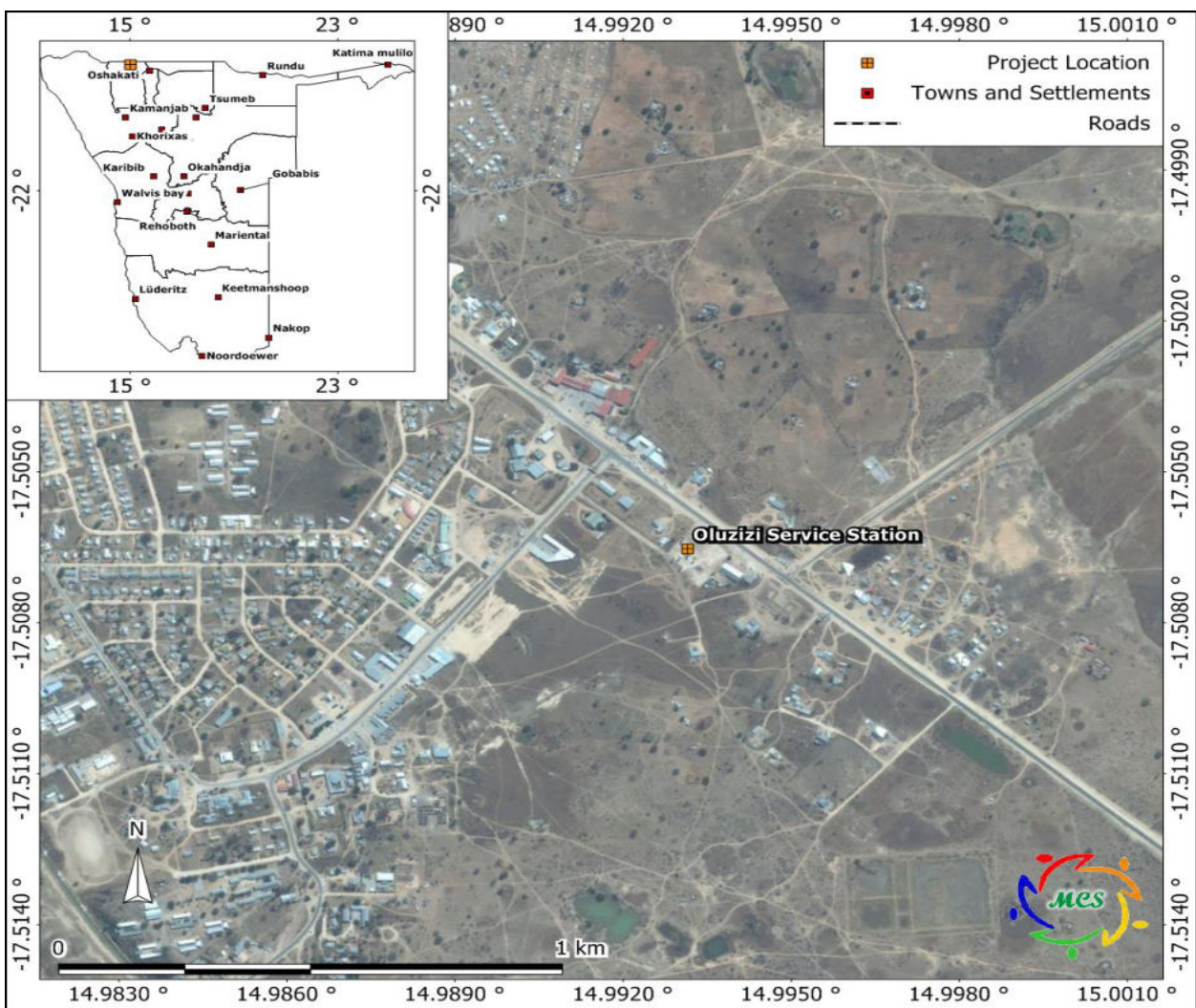
The maintenance and operational activities of the service station entails:

- ✓ Maintenance of buildings and associated facilities.
- ✓ Maintenance (up keep) of fuel storage tanks, reticulation pipelines, dispensing points and associated spill control structures.

- ✓ Maintenance of associated electrical supply.
- ✓ Transport of fuel supply with road transport tanker trucks.
- ✓ The dispensing of fuel to vehicles and/or approved containers.
- ✓ Removal of all infrastructure not reused during future use of land; and
- ✓ Rehabilitation of the land.

### 1.1. Locality and Land Use

The project site ( $17.50654^{\circ}\text{S}$ ;  $14.99315^{\circ}\text{E}$ ) is located along the Main Road C46, in Outapi (Outapi Constituency), in the Omusati Region. The town of Outapi is situated approximately 90km northwest of Oshakati. See Figure 1. The fuel retail facility occupies an approximate land size of 3,200m<sup>2</sup>. The site is surrounded by business properties.



**Figure 1.** Site map ( $17.50654^{\circ}\text{S}$ ;  $14.99315^{\circ}\text{E}$ ) (MCS, 2013)

The site is surrounded by local businesses. Northwest of the site is Oshoolela Garage. The main road C46 is situated northeast of the site, followed by Pena Trading Enterprises. Southeast of the site is newly developed shopping complex, followed by BH Hardware & Spares. Southwest of the site is Namibia Fish Consumption Promotion Trust.



Figure 2. Site layout map

## 2. LEGISLATIVE FRAMEWORK

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### I. The Namibian Constitution

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.

### II. Environmental Management Act No.7 of 2007

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term “*environment*” as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment

*Line Ministry: Ministry of Environment and Tourism*

### **III. The Water Act (Act No 54 of 1956)**

The Water Act No. 54 of 1956 as amended, aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users.

The Act broadly controls the use and conservation of water for domestic, agricultural, urban and industrial purposes; to control, in certain respects, the use of sea water; to control certain activities on or in water in certain areas; and to control activities which may alter the natural occurrence of certain types of atmospheric precipitation.

### **IV. Water Resources Management Act of Namibia (2004) (Guideline only)**

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia's water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

*Line Ministry: Ministry of Agriculture, Water Affairs and Forestry*

### **V. Environmental Assessment Policy of Namibia (1995)**

Environmental Assessments (EA's) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA's) is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

All listed policies, programmes and projects, whether initiated by the government or private sector, should be subjected to the established EA procedures.

Apart from the requirements of the Environmental Assessment Policy, the following sustainability principles needs to be taken into consideration, particularly to achieve proper waste management and pollution control:

#### **✓ Cradle to Grave Responsibility**

This principle provides that those who manufacture potentially harmful products should be liable for their safe production, use and disposal and that those who initiate potentially polluting activities should be liable for their commissioning, operation and decommissioning.

✓ **Precautionary Principle**

There are numerous versions of the precautionary principle. At its simplest it provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

✓ **The Polluter Pays Principle**

A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

✓ **Public Participation and Access to Information**

In the context of environmental management, citizens should have access to information and the right to participate in decisions making.

*Line Ministry: Ministry of Environment and Tourism*

**VI. Petroleum Products and Energy Act of Namibia (Act No. 13 of 1990)**

The Act makes provision for impact assessment for new proposed fuel retail facilities and petroleum products known to have detrimental effects on the environment.

**VII. Draft Pollution Control and Waste Management Bill (Guideline only)**

The operations of the existing Oluzizi Service Station, only applies to Parts 2, 7 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

**VIII. Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976**

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

*Line Ministry: Ministry of Health and Social Services*

**IX. Hazardous Substances Ordinance No. 14 of 1974**

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of

Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

*Line Ministry: Ministry of Health and Social Services*

### **3. RECEIVING ENVIRONMENT**

This section lists the most important environmental characteristics of the project area and provides a statement on the potential environmental impacts.

#### **3.1. Climatic Conditions**

Average annual rainfall (mm/a)	350-400
Variation in annual rainfall (%)	40-50
Monthly annual evaporation (mm/a)	2800-3000
Relative humidity (10%)	10-80
Water deficit (mm/a)	1501-1700
Average annual temperatures (°C)	>22

The Outapi area and its surroundings can be classified as a water deficit area with annual evaporations exceeding the mean annual rainfall by far. Summer rainfall dominates precipitation in the form of thundershowers and seasonal run off events might occur in the form of flash floods.

The aridity of the region causes the water resource to be a scarce commodity and has to be conserved and protected from pollution at all cost.

#### **3.2. Topography and Drainage**

The site is relatively flat with a gentle slope towards the north-northwest. The landscape is classified as being in the Kalahari Sandveld region, which is characterized with paleo dunes and pans. The site is located within the Cuvelai catchment of the Etosha (Etosha-N River) Pan, an ephemeral river, draining in a southern direction into the Etosha Pan.

Local drainage in the area is poorly developed and runoff usually collects in depressions (oshanas, pans and omurambas). However, drainage from the site itself is relatively well developed due to the gentle slope that exists at the site. As a result, runoff from the site itself takes place north-northwest. Surface water in these depressions is often used for animal watering. Proper drainage systems should be maintained at the site to control the flow of surface water to avoid flooding (e.g. erection of culverts).

#### **3.3. Hydrogeology**

Surface geology at the site consists of a thin Kalahari Group cover. The Kalahari Group consists mainly of unconsolidated formations, but some degree of consolidation may be present. The subsurface geology consists of red mudstones, siltstones, sandstones, grit and conglomerate of the Ecca group - Omingonde formation (Tro\_uc).

Groundwater flow would be mostly through primary porosity in the Kalahari cover but flow along fractures, faults (secondary porosity) and other geological structures present within the underlying formations might take place where consolidated layers are present.



Groundwater flow from the site can be expected in a southerly direction; however local drainage patterns may vary due to groundwater abstraction. According to the Department of Water Affairs database (DWA), 30 known boreholes and/or wells exist within a 5km radius from the site. A large part of these holes are located north of the site. The local water table depth in the area is expected to be less than 20mbgl and water quality is considered good. The shallow rest water levels and good quality water observed in the area is usually due to the presence of shallow perched aquifers. This area does not fall within a Water Control Area.

The area does not fall within a groundwater control area; however groundwater remains the property of the government of Namibia.

## **4. ENVIRONMENTAL MANAGEMENT PLAN**

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### **4.1. Responsibilities for environmental management**

Oluzizi Luxury Investments Number Two Cc / Puma Energy Namibia Ltd. will be responsible for environmental control on site during the maintenance and operational phase. It is very important that pre-work and/or maintenance briefing meetings be held to reach an agreement on specific roles of various parties and penalties for non-compliance.

### **4.2. Training and induction**

Oluzizi Luxury Investments Number Two Cc / Puma Energy Namibia Ltd. are bound to be responsible for ensuring that environmental awareness education of all employees and contractors is done satisfactorily. The facility management should ensure that employees and contractors are made aware of the environmental requirements of the project.

The EMP should form part of the Terms of Reference for all contractors, sub-contractors and suppliers. All contractors, sub-contractors and suppliers will have to sign an agreement to assure that they understood the EMP and that they will comply. All senior staff should familiarise themselves with the full contents of the EMP and its implications. Senior staff is expected to train and assist the rest of the employees on the contents of the EMP.

### **4.3. Environmental incident reporting**

All environmental incidents occurring at the proposed site will be recorded. The incident report will have to include time, date, location, and nature of the incident, extent of the incident, actions taken, and personnel involved.

All complaints received from the neighbouring properties or communities should be directed to the manager of Oluzizi Service Station. Management should be able to respond to the complainant within a week (even if pending further investigation).

### **4.4. Environmental monitoring**

Periodic environmental monitoring must be taken on a regular basis. Monitoring should be done in order to ensure compliance with all aspects of the EMP. Findings should be liaised with to all responsible officers as chain command.

#### **4.5. EMP administration**

Copies of this EMP shall be kept at the site office and should be distributed to all senior staff members, including those of the contractors.

#### **4.6. EMP amendments**

The EMP amendments can only be made with the approval of the DEA. Amendments to the EMP should be liaised to all employees and contractors.

#### **4.7. Non compliance of the EMP**

Problems may occur in carrying out mitigation measures or monitoring procedures that could result in non-compliance of the EMP. The responsible personnel should encourage staff to comply with the EMP, and address acts of non-compliance and penalties.

#### **4.8. Environmental Control Officer**

The Environmental Control Officer for the site can be an independent environmental consultant appointed by Oluzizi Luxury Investments Number Two Cc. to monitor and review the on-site environmental management and implementation of this EMP.

#### **4.9. Site Management**

Areas outside this designated working zone shall be considered “no go” areas. The offloading zones must be clearly demarcated when offloading goods to enhance safety around the proposed development.

##### **4.9.1 Access routes and work sites**

Passenger vehicles and road transport trucks will access the fuel retail facility via the existing C46 main road. Work sites shall be clearly demarcated and road signs erected where needed. The general public should not have access to the work sites during maintenance activities.

##### **4.9.2 Fire and safety management**

Any electrical wiring to be conducted at the facility will have to be approved by a qualified electrician who will issue a Certificate of Compliance for these buildings prior to occupation.

Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations are flammable. If precautions are not taken to prevent their ignition, fire and subsequent safety risks may arise.

No fire, whether for cooking or any other purpose, is to be made at the fuel retail facility during any of the three phases (maintenance, operational and decommissioning). The Contractor shall take all reasonable measures and active steps to avoid increasing the risk of fire through activities on site and prevent the accidental occurrence or spread of fire; and shall ensure that there is sufficient fire-fighting equipment on site at all times. This equipment shall include fire extinguishers. The Contractor should be prepared for such events.

The Oluzizi Service Station management together with contractors shall take all reasonable measures to avoid increasing the risk of fire and shall ensure that there is sufficient fire-fighting equipment on site at all times.

#### **4.9.3 Staff management**

The Contractor must ensure that their employees have suitable personal protective equipment and properly trained in fire fighting and first aid.

#### **4.9.4 Waste management**

The developer shall remove all waste off-site to designated waste disposal sites. Sufficient bins or containers on-site to store any solid or liquid waste produced should be provided by Oluzizi Service Station. The bins and containers should be weatherproof and scavenger-proof.

#### **4.9.5 Cement and concrete batching**

Concrete mixing directly on the ground shall not be allowed and shall take place on an impermeable surface. All run-off from batching areas shall be strictly controlled, and cement contaminated water shall be collected, stored and disposed of at a licensed suitable waste disposal facility.

#### **4.9.6 Hydrocarbons management**

If any spillage occurs, contaminated soil shall be collected in a holding tray or drum and which will then disposed at a licensed hazardous waste site. Any spillage of more than 200 litres must be reported to the Ministry of Mines and Energy as per the Petroleum Products Act.

The Contractor shall take all reasonable measures to prevent surface or groundwater pollution from the release of oils and fuels.

Sufficient space should be left in fuel storage tanks to allow for fuel expansion and to prevent leakage of fuel from the fuel retail facility.

#### **4.9.7 Flood management**

Storm water management of the site should be a key aspect of flood management on site. All culverts should be kept clean to allow storm water to flow freely.

## **5. ENVIRONMENTAL MANAGEMENT MEASURES DURING MAINTANANCE AND OPERATIONAL PHASES**

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The impacts associated with the decommissioning phase will be similar to that of maintainance and construction activities. The supplier's guidelines for tank removal must be followed during decommissioning to reduce the risk of spillage and groundwater contamination.

The Environmental Management Plan for this phase will have to be reviewed at the time of decommissioning to cater for changes made to the development.

The tables in this chapter detail the management measures associated with the roles and responsibilities that have been laid out earlier. The aim of the management actions in this

chapter is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts associated this development:

The owner should assess these commitments in detail and should acknowledge their commitment to the specific management actions detailed in the tables below.

## 5.1. Operation and Maintenance Phase

Table 1: Operation and maintenance management actions

Impact	Management Actions
Education and Training	<ul style="list-style-type: none"> <li>• All employees including all contractors appointed for maintenance work on the respective infrastructure and their employees must be made aware of necessary health, safety and environmental considerations applicable to their respective work.</li> <li>• Records of environmental training and incidents should be maintained.</li> <li>• Post instructional/ informational signs regarding storm water pollution around the facility for customers and employees.</li> <li>• Place signs on faucet (hose bibbs) reminding employees and customers to conserve water and not to use water to clean up spills.</li> <li>• Label drains within the facility boundary by paint/ stencil (or equivalent), to indicate whether they flow to an on-site treatment device, directly to the sanitary sewer, or to a storm drain.</li> </ul>
Monitoring and Auditing	<ul style="list-style-type: none"> <li>• An Environmental Practitioner should monitor the implementation of the EMP, and recommend any changes to this document.</li> <li>• The Environmental Practitioner should inspect the site on a regular basis (preferably monthly or bi-monthly).</li> <li>• Biannual reports are to be submitted to the Ministry of Environment, Forestry and Tourism. These reports are to be submitted with the application for the renewal of the ECC.</li> </ul>
General Facility	<ul style="list-style-type: none"> <li>• Spot clean leaks and drips routinely.</li> <li>• Maintain a spill response plan and keep it current.</li> <li>• The above to take into consideration air, surface and groundwater, and soil quality, as well as the transportation of products to and from the facility.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Inspect and clean storm drain inlets and catch basins within the facility boundary at least once each year.</li> <li>• Ensure adherence to the Covid-19 protocols, as they are applicable from time to time.</li> <li>• Ensure availability of fully stocked first aid kits.</li> <li>• Ensure a designated and trained official is available to administer first aid.</li> <li>• Personnel are to be provided with relevant protective equipment.</li> </ul>
Fuel Dispensing Area	<ul style="list-style-type: none"> <li>• Ensure paving of the land within the confines of the property, priority to be given to concrete slabs as opposed to interlocks especially at the fuel dispensing areas.</li> <li>• Maintain fuel dispensing areas using dry clean-up methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills, and never wash down unless the wash water is collected and disposed of properly.</li> <li>• Fit underground storage tanks with spill containment and overfill prevention systems.</li> <li>• Fit fuel dispensing nozzles with “hold-open latches” (automatic shutoffs).</li> <li>• Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against “topping off” of vehicle fuel tanks.</li> <li>• Ensure metering of incoming and outgoing fuel and maintain records.</li> <li>• Ensure metering equipment are calibrated as per industry standards.</li> <li>• Maintain all equipments, such as tanks, pumps, meters, hoses etc. in a clean state (regular inspections to be carried out).</li> </ul>
Hazardous Substances	<ul style="list-style-type: none"> <li>• All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff are trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication.</li> <li>• Storage areas for all substances, in particular fuel, should be bunded and capable to hold 120% of the total volume of a given substance stored on site.</li> <li>• Ensure fuel tanks do not leak (regular inspections to be carried out).</li> </ul>
Housekeeping	<p><b>Equipment Cleaning</b></p> <ul style="list-style-type: none"> <li>• <b>Indoor Cleaning:</b> Clean equipment in a designated area, such as a mop sink, pot sink, or floor area with a drain connected to the sanitary sewer.</li> <li>• <b>Outdoor Cleaning:</b> Clean equipment in a designated covered, bermed area with a drain connected to the sanitary sewer.</li> <li>• Do not clean equipment cleaned outdoors in any area where water may flow to a street, gutter, storm drain, or stream.</li> <li>• Use floor mats that are small enough to be cleaned inside in a mop sink or near a floor drain.</li> <li>• Take floor mats that are too big to be cleaned indoors, to a self-service car wash to clean?</li> </ul> <p><b>Grease Handling and Disposal</b></p> <ul style="list-style-type: none"> <li>• Prevent oil, grease, or waste grease from being poured down a storm drain, or into a skip container.</li> <li>• Ensure waste grease from grease interceptors and traps are being properly disposed of by a responsible/ recognised disposal company.</li> </ul>

Impact	Management Actions
	<p data-bbox="696 312 1144 341"><b>Spill Clean-up and Surface Cleaning</b></p> <p data-bbox="696 373 898 402"><b>Spill Prevention</b></p> <ul data-bbox="696 437 1928 895" style="list-style-type: none"> <li data-bbox="696 437 1357 466">• Maintain a Spill Response Plan and keep it current.</li> <li data-bbox="696 501 1632 529">• Minimise the distance between waste collection points and storage areas.</li> <li data-bbox="696 564 1290 593">• Contain and cover all solid and liquid wastes.</li> <li data-bbox="696 628 1928 735">• Ensure absorbent materials and other spill response equipment are maintained in accordance with local regulations and procedures for containment and clean-up of different spills, and that they are easily accessible from anywhere in the facility.</li> <li data-bbox="696 770 1189 799">• Spot clean leaks and drips routinely.</li> <li data-bbox="696 834 1921 895">• Make sure floor drains are connected to or discharge to the sanitary sewer system, and not to the storm drain system.</li> </ul> <p data-bbox="696 930 875 959"><b>Spill Clean-up</b></p> <ul data-bbox="696 994 1727 1150" style="list-style-type: none"> <li data-bbox="696 994 1043 1023">• Stop spills at the source.</li> <li data-bbox="696 1058 1727 1086">• Prevent wash water from spill clean-up from flowing to a gutter or a storm drain.</li> <li data-bbox="696 1121 1424 1150">• Use granular absorbents (e.g. cat litter) to absorb spills.</li> </ul>
Cooling and Refrigeration Equipment Maintenance	<ul data-bbox="696 1190 1939 1251" style="list-style-type: none"> <li data-bbox="696 1190 1939 1251">• Ensure all discharges from cooling and refrigeration equipment are going to the sanitary sewer and not to the street or storm drains.</li> </ul>
Access	<ul data-bbox="696 1291 1850 1385" style="list-style-type: none"> <li data-bbox="696 1291 1525 1319">• Provide for painted guidelines in terms of access and exit points.</li> <li data-bbox="696 1355 1850 1385">• Consider the construction of raised islands to prevent motorist from entering and accessing</li> </ul>



Impact	Management Actions
	<p>through the wrong lane.</p> <ul style="list-style-type: none"> <li>• Provide for pedestrian crossing.</li> <li>• It is highly recommended that the premises, especially the area housing the tanks and pumps be paved, with impermeable slabs as opposed to interlocks.</li> </ul>
Water	<ul style="list-style-type: none"> <li>• No dumping of waste products of any kind in or in close proximity to any surface water bodies.</li> <li>• Contaminated runoff from the various operational activities such as greases, fuels, oils etc. should be prevented from entering any surface or ground water bodies.</li> <li>• Ensure that surface water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.</li> <li>• Treat oily water through an oil/water separator before it is drained to the sewer or collected by a licensed contractor.</li> <li>• Prevent fuel spills: look at work practices, staff training, equipment and storage.</li> <li>• Consider the use of environmentally friendly degreasers for washing and cleaning.</li> <li>• Regularly monitor underground tanks and supply lines to detect leaks.</li> <li>• Ensure groundwater monitoring wells are in place and are regularly monitored and sampled.</li> <li>• Consider the installation of an automatic leak detection system.</li> <li>• The leak detectors must be tested and monitored regularly.</li> <li>• In the instance of an accidental spill, the effluent should be contained as far as possible in a separator pit.</li> </ul>
Washing Cars and other	<b>Regular Activity</b>

Impact	Management Actions
Vehicles	<ul style="list-style-type: none"> <li>• If car washing is a central activity of the business, consider the treatment and recycling of wash water.</li> <li>• Designate a vehicle washing area, and ensure cars and trucks are washed only in that area.</li> <li>• Ensure the “wash pad” is bermed to prevent discharges to storm drains and that it discharges to the sanitary sewer drains after adequate treatment and approval of the local authority. (Note: An outside wash pad should be covered, or its area minimized to reduce the amount of rainwater reaching the sanitary sewer. Consult the local authority for guidance)</li> <li>• Prohibit acid-based wheel cleaners and other specialized cleaners, or if not, ensure they are provided proper treatment before discharge to the sewer. (Note: Consult the local authority for guidance)</li> </ul> <p><b>Occasional Activity</b></p> <ul style="list-style-type: none"> <li>• If soap is used in washing, ensure the wash water collected is discharged, preferably with treatment, to the sanitary sewer, and not discharged to a storm drain.</li> <li>• Ensure rinse water from spray-on acid-based wheel cleaners are prevented from flowing to a street, gutter, or storm drain.</li> </ul> <p><b>Washing New Vehicles</b></p> <ul style="list-style-type: none"> <li>• Protect storm drains from solvents used to remove protective coatings from new cars. (Note: Discharges of these solvents to the sanitary sewer must receive adequate treatment and approval of the local authority).</li> </ul>
Fire prevention and control	<ul style="list-style-type: none"> <li>• Smoking should not be allowed on the premises.</li> <li>• Ensure availability of sufficient fire hydrants.</li> <li>• Ensure sufficient supply of water for fire hydrants.</li> <li>• Ensure availability of sufficient fire extinguishers.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Control high fire risk activities that have to be carried out such as welding on the premises.</li> <li>• Train employees in the use of fire-fighting equipment.</li> <li>• Store flammable inventory in a secure area with proper firefighting equipment and signage.</li> </ul>
Energy efficiency and water management	<p>The owner should consult the relevant national and/or international development guidelines which addresses the following:</p> <ul style="list-style-type: none"> <li>• The incorporation of water saving initiatives and technology within the development in order to reduce water demand.</li> <li>• Ensure sufficient metering systems are in place to monitor the energy and water use.</li> <li>• Train employees on the importance of water and energy savings.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Do not allow activities that generate excessive noise levels.</li> <li>• Continuous monitoring of noise levels should be conducted to make sure the noise levels do not exceed acceptable limits.</li> <li>• No activity having a potential noise impact should be allowed after 18:00 if possible.</li> <li>• Maintain equipment used during the operation and keep them in a good state such that they do not emit excessive noise.</li> </ul>
Emissions	<ul style="list-style-type: none"> <li>• Manage activities that generate emissions.</li> <li>• Use vapour recovery equipment and techniques to avoid air pollution and minimise fuel loss.</li> <li>• Position vent pipes at points that are far from buildings and adjacent properties.</li> <li>• Train fuel area staff in vapour recovery procedures.</li> <li>• Conduct regular air quality monitoring.</li> </ul>

Impact	Management Actions
Waste management	<ul style="list-style-type: none"> <li>• Explore recycling solutions for waste.</li> <li>• Spot clean leaks and drips routinely.</li> <li>• Minimise storm water pollution from outside waste receptacles by doing at least one of the following: <ul style="list-style-type: none"> <li>a) Use of only watertight waste receptacle(s) and keep the lid(s) closed;</li> <li>b) Grading and paving the waste receptacle area to prevent run-on of storm water;</li> <li>c) Installing a roof over the waste receptacle area;</li> <li>d) Installing a low containment berm around the waste receptacle area;</li> <li>e) Using and maintaining drip pans under waste receptacles.</li> </ul> </li> <li>• Provide for adequate number of refuse bins at all pumps as well as around the site.</li> <li>• Use recognized waste management service providers to handle solid waste.</li> <li>• Solid waste to be disposed of at the designated landfill of the Local Authority.</li> <li>• All hazardous waste to be collected and disposed of as per industry standards.</li> <li>• Provide suitable on-site ablution facilities to cater for all personnel and customers using the facilities.</li> <li>• Keep spill cleanup materials handy near the tank and loading areas.</li> </ul>
Visual Impact	<ul style="list-style-type: none"> <li>• Use colours that blend in with the natural environment for the painting of buildings.</li> </ul>

## 5.2. Decommissioning Phase

There is an inherent environmental risk with fuel storage and handling, therefore the removal of redundant infrastructure should be done expeditiously. While residual leftovers in the storage and handling of fuel may represent a small portion of the total capacity, those seemingly insignificant small amounts of product can pose a serious health and safety risk to personnel and the surrounding environment. Hence decommissioning activities require close management. **Table 2** delineates requirements and processes to be followed without serious impact to the surrounding environment, this also include procedures for identifying pollution during the decommissioning process. Due to non-availability of local guidelines, we have looked at international best practice (adapted from Directorate of Environment and Heritage Policy Development, Australia 2017).

**Table 2: Decommissioning Phase**

Impact	Management Actions
Education and Training	<ul style="list-style-type: none"> <li>• All employees including all contractors appointed for maintenance work on the respective infrastructure and their employees must be made aware of necessary health, safety and environmental considerations applicable to their respective work.</li> <li>• Records of environmental training and incidents should be maintained.</li> <li>• Post instructional/ informational signs regarding storm water pollution around the facility for customers and employees.</li> <li>• Place signs on faucet (hose bibbs) reminding employees and customers to conserve water and not to use water to clean up spills.</li> <li>• Label drains within the facility boundary by paint/ stencil (or equivalent), to indicate whether they flow to an on-site treatment device, directly to the sanitary sewer, or to a storm drain.</li> </ul>
Monitoring and Auditing	<ul style="list-style-type: none"> <li>• An Environmental Practitioner should monitor the implementation of the EMP, and recommend any changes to this document.</li> <li>• The Environmental Practitioner should inspect the site on a regular basis (preferably monthly or bi-monthly).</li> <li>• Biannual reports are to be submitted to the Ministry of Environment, Forestry and Tourism. These reports are to be submitted with the application for the renewal of the ECC.</li> </ul>
General Facility	<ul style="list-style-type: none"> <li>• Spot clean leaks and drips routinely.</li> <li>• Maintain a spill response plan and keep it current.</li> <li>• The above to take into consideration air, surface and groundwater, and soil quality, as well as the transportation of products to and from the facility.</li> <li>• Inspect and clean storm drain inlets and catch basins within the facility boundary at least once each year.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Ensure adherence to the Covid-19 protocols, as they are applicable from time to time.</li> <li>• Ensure availability of fully stocked first aid kits.</li> <li>• Ensure a designated and trained official is available to administer first aid.</li> <li>• Personnel are to be provided with relevant protective equipment.</li> </ul>
Fuel Dispensing Area	<ul style="list-style-type: none"> <li>• Ensure paving of the land within the confines of the property, priority to be given to concrete slabs as opposed to interlocks especially at the fuel dispensing areas.</li> <li>• Maintain fuel dispensing areas using dry clean-up methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills, and never wash down unless the wash water is collected and disposed of properly.</li> <li>• Fit underground storage tanks with spill containment and overfill prevention systems.</li> <li>• Fit fuel dispensing nozzles with “hold-open latches” (automatic shutoffs).</li> <li>• Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against “topping off” of vehicle fuel tanks.</li> <li>• Ensure metering of incoming and outgoing fuel and maintain records.</li> <li>• Ensure metering equipment are calibrated as per industry standards.</li> <li>• Maintain all equipments, such as tanks, pumps, meters, hoses etc. in a clean state (regular inspections to be carried out).</li> </ul>
Hazardous Substances	<ul style="list-style-type: none"> <li>• All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable.</li> <li>• Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff are trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication.</li> <li>• Storage areas for all substances, in particular fuel, should be bunded and capable to hold 120% of the total volume of a given substance stored on site.</li> <li>• Ensure fuel tanks do not leak (regular inspections to be carried out).</li> </ul>

Impact	Management Actions
Housekeeping	<p data-bbox="750 209 1003 236"><b>Equipment Cleaning</b></p> <ul data-bbox="701 276 1937 550" style="list-style-type: none"> <li data-bbox="701 276 1937 331">• <b>Indoor Cleaning:</b> Clean equipment in a designated area, such as a mop sink, pot sink, or floor area with a drain connected to the sanitary sewer.</li> <li data-bbox="701 336 1937 392">• <b>Outdoor Cleaning:</b> Clean equipment in a designated covered, bermed area with a drain connected to the sanitary sewer.</li> <li data-bbox="701 403 1937 459">• Do not clean equipment cleaned outdoors in any area where water may flow to a street, gutter, storm drain, or stream.</li> <li data-bbox="701 470 1937 510">• Use floor mats that are small enough to be cleaned inside in a mop sink or near a floor drain.</li> <li data-bbox="701 515 1937 550">• Take floor mats that are too big to be cleaned indoors, to a self-service car wash to clean?</li> </ul> <p data-bbox="701 587 1064 614"><b>Grease Handling and Disposal</b></p> <ul data-bbox="701 619 1848 758" style="list-style-type: none"> <li data-bbox="701 619 1848 675">• Prevent oil, grease, or waste grease from being poured down a storm drain, or into a skip container.</li> <li data-bbox="701 686 1848 758">• Ensure waste grease from grease interceptors and traps are being properly disposed of by a responsible/ recognised disposal company.</li> </ul> <p data-bbox="701 826 1142 853"><b>Spill Clean-up and Surface Cleaning</b></p> <p data-bbox="701 890 900 917"><b>Spill Prevention</b></p> <ul data-bbox="701 922 1937 1244" style="list-style-type: none"> <li data-bbox="701 922 1355 949">• Maintain a Spill Response Plan and keep it current.</li> <li data-bbox="701 960 1635 987">• Minimise the distance between waste collection points and storage areas.</li> <li data-bbox="701 999 1288 1026">• Contain and cover all solid and liquid wastes.</li> <li data-bbox="701 1037 1937 1133">• Ensure absorbent materials and other spill response equipment are maintained in accordance with local regulations and procedures for containment and clean-up of different spills, and that they are easily accessible from anywhere in the facility.</li> <li data-bbox="701 1144 1187 1171">• Spot clean leaks and drips routinely.</li> <li data-bbox="701 1182 1937 1244">• Make sure floor drains are connected to or discharge to the sanitary sewer system, and not to the storm drain system.</li> </ul> <p data-bbox="701 1281 873 1308"><b>Spill Clean-up</b></p> <ul data-bbox="701 1313 1724 1420" style="list-style-type: none"> <li data-bbox="701 1313 1041 1340">• Stop spills at the source.</li> <li data-bbox="701 1351 1724 1378">• Prevent wash water from spill clean-up from flowing to a gutter or a storm drain.</li> <li data-bbox="701 1390 1422 1420">• Use granular absorbents (e.g. cat litter) to absorb spills.</li> </ul>



Impact	Management Actions
Cooling and Refrigeration Equipment Maintenance	<ul style="list-style-type: none"> <li>• Ensure all discharges from cooling and refrigeration equipment are going to the sanitary sewer and not to the street or storm drains.</li> </ul>
Access	<ul style="list-style-type: none"> <li>• Provide for painted guidelines in terms of access and exit points.</li> <li>• Consider the construction of raised islands to prevent motorist from entering and accessing through the wrong lane.</li> <li>• Provide for pedestrian crossing.</li> <li>• It is highly recommended that the premises, especially the area housing the tanks and pumps be paved, with impermeable slabs as opposed to interlocks.</li> </ul>
Water	<ul style="list-style-type: none"> <li>• No dumping of waste products of any kind in or in close proximity to any surface water bodies.</li> <li>• Contaminated runoff from the various operational activities such as greases, fuels, oils etc. should be prevented from entering any surface or ground water bodies.</li> <li>• Ensure that surface water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.</li> <li>• Treat oily water through an oil/water separator before it is drained to the sewer or collected by a licensed contractor.</li> <li>• Prevent fuel spills: look at work practices, staff training, equipment and storage.</li> <li>• Consider the use of environmentally friendly degreasers for washing and cleaning.</li> <li>• Regularly monitor underground tanks and supply lines to detect leaks.</li> <li>• Ensure groundwater monitoring wells are in place and are regularly monitored and sampled.</li> <li>• Consider the installation of an automatic leak detection system.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• The leak detectors must be tested and monitored regularly.</li> <li>• In the instance of an accidental spill, the effluent should be contained as far as possible in a separator pit.</li> </ul>
Washing Cars and other Vehicles	<p><b>Regular Activity</b></p> <ul style="list-style-type: none"> <li>• If car washing is a central activity of the business, consider the treatment and recycling of wash water.</li> <li>• Designate a vehicle washing area, and ensure cars and trucks are washed only in that area.</li> <li>• Ensure the “wash pad” is bermed to prevent discharges to storm drains and that it discharges to the sanitary sewer drains after adequate treatment and approval of the local authority. (Note: An outside wash pad should be covered, or its area minimized to reduce the amount of rainwater reaching the sanitary sewer. Consult the local authority for guidance)</li> <li>• Prohibit acid-based wheel cleaners and other specialized cleaners, or if not, ensure they are provided proper treatment before discharge to the sewer. (Note: Consult the local authority for guidance)</li> </ul> <p><b>Occasional Activity</b></p> <ul style="list-style-type: none"> <li>• If soap is used in washing, ensure the wash water collected is discharged, preferably with treatment, to the sanitary sewer, and not discharged to a storm drain.</li> <li>• Ensure rinse water from spray-on acid-based wheel cleaners are prevented from flowing to a street, gutter, or storm drain.</li> </ul> <p><b>Washing New Vehicles</b></p> <ul style="list-style-type: none"> <li>• Protect storm drains from solvents used to remove protective coatings from new cars. (Note: Discharges of these solvents to the sanitary sewer must receive adequate treatment and approval of the local authority).</li> </ul>
Fire prevention and control	<ul style="list-style-type: none"> <li>• Smoking should not be allowed on the premises.</li> <li>• Ensure availability of sufficient fire hydrants.</li> <li>• Ensure sufficient supply of water for fire hydrants.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Ensure availability of sufficient fire extinguishers.</li> <li>• Control high fire risk activities that have to be carried out such as welding on the premises.</li> <li>• Train employees in the use of fire-fighting equipment.</li> <li>• Store flammable inventory in a secure area with proper firefighting equipment and signage.</li> </ul>
Energy efficiency and water management	<p>The owner should consult the relevant national and/or international development guidelines which addresses the following:</p> <p>The incorporation of water saving initiatives and technology within the development in order to reduce water demand.</p> <p>Ensure sufficient metering systems are in place to monitor the energy and water use.</p> <p>Train employees on the importance of water and energy savings.</p>
Noise	<ul style="list-style-type: none"> <li>• Do not allow activities that generate excessive noise levels.</li> <li>• Continuous monitoring of noise levels should be conducted to make sure the noise levels do not exceed acceptable limits.</li> <li>• No activity having a potential noise impact should be allowed after 18:00 if possible.</li> <li>• Maintain equipment used during the operation and keep them in a good state such that they do not emit excessive noise.</li> </ul>
Emissions	<ul style="list-style-type: none"> <li>• Manage activities that generate emissions.</li> <li>• Use vapour recovery equipment and techniques to avoid air pollution and minimise fuel loss.</li> <li>• Position vent pipes at points that are far from buildings and adjacent properties.</li> <li>• Train fuel area staff in vapour recovery procedures.</li> </ul>

Impact	Management Actions
	<ul style="list-style-type: none"> <li>• Conduct regular air quality monitoring.</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>• Explore recycling solutions for waste.</li> <li>• Spot clean leaks and drips routinely.</li> <li>• Minimise storm water pollution from outside waste receptacles by doing at least one of the following: <ul style="list-style-type: none"> <li>f) Use of only watertight waste receptacle(s) and keep the lid(s) closed;</li> <li>g) Grading and paving the waste receptacle area to prevent run-on of storm water;</li> <li>h) Installing a roof over the waste receptacle area;</li> <li>i) Installing a low containment berm around the waste receptacle area;</li> <li>j) Using and maintaining drip pans under waste receptacles.</li> </ul> </li> <li>• Provide for adequate number of refuse bins at all pumps as well as around the site.</li> <li>• Use recognized waste management service providers to handle solid waste.</li> <li>• Solid waste to be disposed of at the designated landfill of the Local Authority.</li> <li>• All hazardous waste to be collected and disposed of as per industry standards.</li> <li>• Provide suitable on-site ablution facilities to cater for all personnel and customers using the facilities.</li> <li>• Keep spill cleanup materials handy near the tank and loading areas.</li> </ul>
Visual Impact	<ul style="list-style-type: none"> <li>• Use colours that blend in with the natural environment for the painting of buildings.</li> </ul>

## 6. CONCLUSION

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If the above-mentioned management recommendations are properly implemented, it is anticipated that most of the adverse impacts on the environment can be mitigated. An appointed environmental officer/consultant will need to monitor or audit the site throughout its operations to ensure that the EMP is fully implemented and complied with. The EMP caters for all project phases, but will need to be reviewed during all phases of project, especially when revisions are made to the project development plans.

The Environmental Management Plan should be used as an on-site tool during all phases of the development. Parties responsible for contravention of the EMP should be held responsible for any rehabilitation that may need to be undertaken. It is the Proponent's responsibility to initiate the update of the EMP once it has expired after 3 years from the issue date of the environmental clearance.