

ENVIRONMENTAL MANAGEMENT PLAN

UUKWANGULA FILLING STATION

OSHANA REGION



January 2025

Prepared:

By:



FIN Hydro Environmental Technologies

For:

Uukwangula Filling Station Cc

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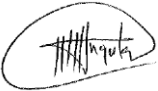
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APPENDICES

Appendix A	Copy of the previous ECC
Appendix B	Confirmation of screening notice
Appendix C	Curriculum Vitae

DOCUMENT INFORMATION:

DOCUMENT TITLE:	Renewal of Environmental Clearance Certificate (ECC) for the continued operation of the Uukwangula Filling Station at Uukwangula, Oshana Region
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ISSUE DATE:	19 February 2025
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1| INTRODUCTION AND BACKGROUND

An Environmental Management Plan (EMP) has been commissioned by Uukwangula Filling Station CC for the existing Uukwangula Filling Station at Uukwangula, Oshana Region. The EMP serves as a managing tool for the continued operations of the existing fuel retail facility.

The original environmental clearance certificate (ECC) was issued in June 2017, and has since expired in June 2020. The construction of the project was delayed due to financial constraints, however the proponent now intends to commence the development of the project. In accordance with the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), FIN Hydro Environmental Technologies was designated to carry out the tasks required to facilitate an application for the renewal of the ECC with the Environmental Commissioner.

According to the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the project in question is subject to the following activities, which are detailed in Table 1:

Table 1: Below are activities listed in the EIA Regulations that are relevant to the project

Activity Name and No(s):	Description of relevant Activity
Activity 9.4 Hazardous Substance Treatment, Handling and Storage	<p>The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.</p> <p><u>Relevance to project:</u></p> <p>Uukwangula Filling Station will store and handle diesel and petrol products (hazardous substances) with capacity of more than 30 cubic meters.</p>
Activity 9.5 Hazardous Substance Treatment, Handling and Storage	<p>Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.</p> <p><u>Relevance to project:</u></p> <p>The project includes the construction of a service station.</p>

Activity 8.9 Water Resource Developments	Construction and other activities within a catchment area. <u>Relevance to project:</u> The project will be constructed within the iishana catchments in the area.
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This EMP is developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development. The document 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 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.

2| PROPOSED INSTALLATION INFORMATION

The underground infrastructure at the site consists of two (2) underground storage tanks, namely;

- ☐ 1 x Tank – 46 m3 unleaded petrol (ULP),
- ☐ 1 x Tank – 46 m3 diesel (50ppm),

The two tanks will be installed with suitable associated reticulation pipelines. Three pump islands and a canopy will be constructed at the site. The site will also be equipped with spill containment facilities, which will be connected to a 3-chamber separator pit. Provisions will be made for future expansion to accommodate a separate pump island with canopy, specifically for the supply of diesel to bulk users. See Figure 1 for a proposed site layout map.

This facility will be constructed and operated according to relevant SANS standards (or better), with special emphasis on SANS 10089:1999, SANS 100131:1977, SANS 100131:1979, SANS 100131:1982, SANS 100131:1999.

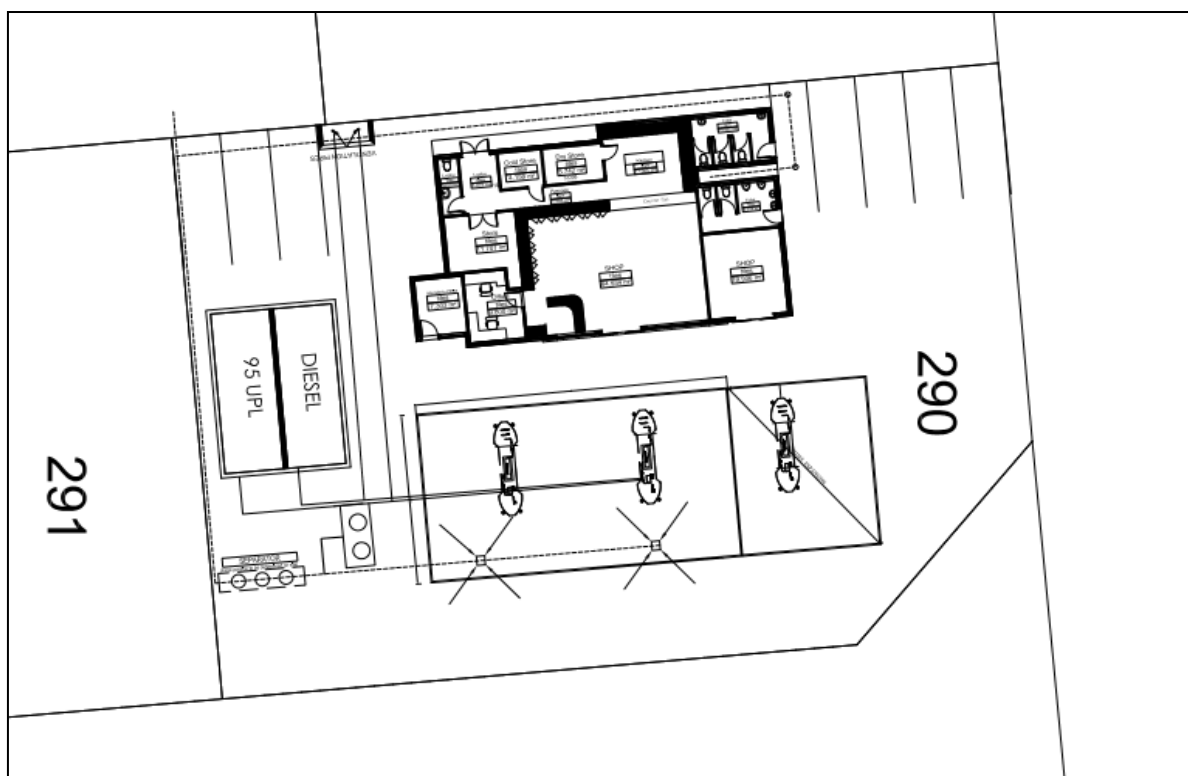


Photo 1: Proposed layout design

3| LOCALITY

The proposed development is located on Plots 288 and 289 in the Uukwangula Township (17.79297° S; 15.61040° E) in Oshakati, Oshana Region. The project site is situated along main road C41 (Oshakati – Okahao road). The site measures an aerial size of approximately 7,200m². Land use in the area is classified as a mixture of business and residential.

Uukwangula is situated some 10 kilometres west of Oshakati, and was declared a settlement administered by the regional council in 2003. However, in 2024, the Uukwangula Settlement was integrated into Oshakati Town Council as the Uukwangula Township. See Figure 1 for the locality map.

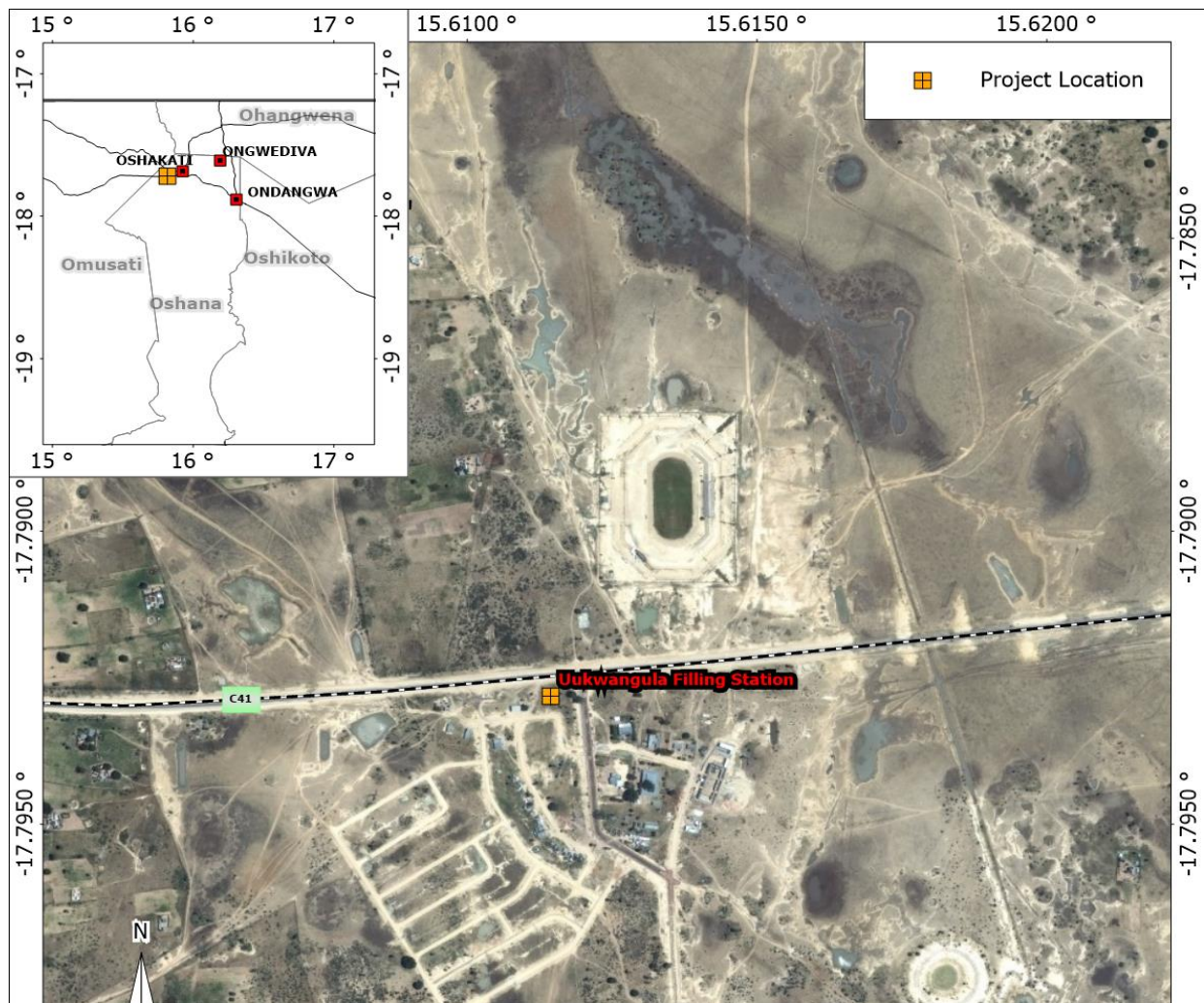


Figure 1. Project locality map



Figure 2. Layout map of site

4| STRUCTURES FOR ENVIRONMENTAL MANAGEMENT

During the site improvement and operation phases, environmental management on the site will be the responsibility of the contractor and/or its representatives.

1. The construction workers responsible for the project construction and maintenance are referred to as the Contractor (and its subcontractors) for the purposes of this report.
2. The operator (and its employees, staff) and suppliers responsible for the project site's operations are referred to as the Proponent.

Management shall provide resources essential to the implementation and control of the EMP including: human resources, technology, and financial resources. The general roles and responsibilities of various parties during construction, maintenance and operations of the site are outlined below.

4.1 ROLES OF THE PROPONENT

Uukwangula Filling Station Cc, through a representative will ensure that the proponents' responsibilities are executed in compliance with the relevant legislations. The proponent will have the following responsibilities in terms of the implementation of this EMP:

- Be fully knowledgeable with the contents of the EMP;

- Review and authorize updates to the EMP.
- Ensure resource allocation for implementation of the EMP requirements.
- Ensure that environmental requirements are integrated into project plans, work method statements, tender and contract documents.
- Ensure necessary support to all staff, suppliers and contractors for implementation of the EMP.
- Undertake environmental system reviews, site inspections, audits and other verification activities to assure that the EMP implementation is at an optimal level.
- Participate in environmental performance verification activities to verify the level of compliance with the EMP in delivering the legal and environmental obligations.
- Assess the efficacy of the EMP and identify possible areas of improvement or amendment required within the EMP.
- Participate in incident investigations (as required).
- Initiate external audits (as required).

4.2 ROLES OF THE CONTRACTOR

The contractor shall ensure that all construction staff, its sub-contractors and suppliers are familiar with, understand and adhere to the EMP. Failure by any employee of the Contractor, Sub-contractor, Suppliers etc. to show adequate consideration to the environmental aspects of this contract shall be considered sufficient cause for the proponent to have the employee removed from the site. The proponent will also order the removal of equipment from the site that is causing continual environmental damage (e.g. leaking oil and diesel). Such measures will not replace any legal proceedings the Client may institute against the Contractor.

The proponent shall order the contractor to suspend part or all of the works if the contractor and/or any sub-contractor, suppliers, etc., fail to comply with both the EMP and the construction procedures supplied by the Contractor. The suspension will be enforced until such time as the offending procedure or equipment is corrected and/or if required remedial measures are put in place.

By virtue of the environmental obligations delegated to the Contractor through the Contract Document, all staff (including subcontractors and staff), suppliers, and service providers appointed for the project would be responsible for:

- Ensuring adherence by providing adequate staff and provisions to meet the requirements of the EMP;
- Ensuring that Method Statements are submitted to the proponent for approval before any work is undertaken, and monitor compliance with the EMP and approved Environmental Method Statements;
- Ensuring that any instructions issued by the proponent are adhered to;
- Ensuring the representation of a report at each site meeting, documenting all incidents that have occurred during the period before the site meeting;

- Undertake daily, weekly and monthly inspections of the work area(s);
- Ensuring that a register of all the transgressions issued by the proponent is kept in the site office;
- Ensuring that a register of all public complaints is maintained; and
- Report and record any environmental incidents caused by the Contractor or due to the Contractor's activities;
- Obtain required corrective action within specified time frames and close out of environmental incidents.

4.3 ROLES OF THE ENVIRONMENTAL CONTROL OFFICER (ECO)

The ECO for the site can be an independent environmental consultant appointed by Uukwangula Filling Station Cc to monitor and review the on-site environmental management and implementation of this EMP at the construction site. The duties of the ECO:

- Ensure that all activities on site are undertaken in accordance with the EMP;
- Undertake compliance audits against the EMP and conditions of the Environmental Authorisation (where required).
- Provide support and advice to the proponent, contractor and all subcontractors in the implementation of environmental management procedures and corrective actions.
- Report significant incidents internally and externally as required by law and the conditions of authorisation.
- Ensure that monitoring programs, which assess the performance of the EMP, are implemented.
- Assist in the investigation of incidents and non-conformances and confirm that corrective and preventive action is taken and is effective.
- Assess the efficacy of the EMP and identify possible areas of improvement or amendment required within the EMP.
- Facilitate the amendment of the EMP in conjunction with the proponent (as required).
- Provide environmental training for key project personnel (in communication with proponent).
- Prepare audit reports (and submit reports to the relevant authority as required).

5| IMPLEMENTATION AND MONITORING

5.1 SITE ESTABLISHMENT

The 'site' here refers to all areas in use during construction and maintenance. Prior to any such activities on site, where necessary the approved site shall be demarcated for such activities. The contractor shall maintain the demarcation line and ensure that materials used for construction of the site do not blow on or move outside the site and environs, or pose a threat to people. The contractor shall ensure that all his plant,

labour and materials remain within the boundaries of the site, unless otherwise agreed in writing with proponent.

The contractor shall be responsible to ensure that building materials such as sand is not blown away and take the necessary precautions to prevent sand from being blown by the wind.

5.2 SOLID WASTE MANAGEMENT

Uukwangula Filling Station Cc / Contractor shall institute a waste control and removal system for the site. Contractors shall not dispose of any waste and/or construction debris by burning, or by burying during site construction and maintenance activities. All waste shall be disposed of site at an approved landfill site. Consultation with the Uukwangula Town Council should be conducted in this regard.

Waste shall be properly contained in a scavenger, water and wind-proof containers until disposed of at an approved landfill. Bins shall be emptied and waste removed at least once a week from the site. The bins shall not be used for any purposes other than waste collection. Petroleum, chemical, harmful and hazardous waste throughout the site shall be stored in enclosed, bunded areas. Such waste shall be disposed offsite at an appropriate hazardous waste disposal site.

All contaminated soils produced on site during operations must be removed from the site and disposed off or treated at a suitable facility. Unfortunately, no hazardous waste disposal facility exists in Uukwangula, or the region at large, therefore a controlled bioremediation facility should be developed for any contaminated soil produced.

5.3 CEMENT AND CONCRETE OPERATIONS

The contractor is advised that cement and concrete are regarded as materials that are potentially damaging to the natural environment on account of the very high pH of the material, and the chemicals contained therein. The contractor shall ensure that all operations that involve the use of cement and concrete during

site construction and maintenance are carefully controlled. Concrete mixing shall only take place in agreed specific areas on site.

Water and slurry from concrete mixing operations shall be contained to prevent pollution of the ground surrounding the mixing points. Old cement bags shall be placed in wind and spill proof containers as soon as they are empty. The contractor shall not allow closed, open or empty bags to lie around the site.

5.4 PREVENTION OF SOIL, SURFACE-AND GROUNDWATER POLLUTION

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or surface water resources on and adjacent to the site as a result of his activities. Such pollution could result from the release, accidental or otherwise, of chemicals, oils, fuels, sewage and waste products, etc.

Where necessary, the Contractor shall obtain oil absorbent pads, booms and spill kits, or similar designed products or materials to soak up oil, petrol and diesel. The Contractor shall ensure that he is familiar with the correct use and disposal of any materials designed to soak up petroleum products.

The Contractor shall remove all oil, petrol, diesel-soaked soil immediately and shall dispose of it as hazardous waste.

5.5 SITE CLEAN UP AND REHABILITATION

The contractor shall ensure that all waste, temporary structures, equipment, materials and facilities used during site construction and maintenance are removed upon completion. The Contractor shall clear and clean the construction site to the satisfaction of the proponent upon completion of the project.

The contractor will undertake all rehabilitation of areas disturbed as a result of activities on site. Especially areas outside the designated project area.

5.6 COMPLIANCE MONITORING

5.6.1 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.

5.6.2 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.

5.6.3 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.

5.6.4 NON-COMPLIANCE

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.

5.6.5 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.

5.6.6 ACCESS ROUTES AND WORK SITES

Management of access routes and work sites at a service station is crucial for ensuring safety, minimizing risks, and maintaining smooth operations.

Vehicular movement during all phases of the development will access the construction site from the C41 road. No new tracks or roads shall be established and only existing roads may be used. Work sites shall be clearly demarcated and road signs erected where needed. The general public should not have unauthorised or uncontrolled access to the waste disposal site during both construction phase.

Suitable signs must also be erected on the approach roads and on-site, to direct drivers and to control speed. Furthermore, on-going controls, such as fencing and policing, must be implemented.

5.7 CONTINUOUS IMPROVEMENT

Based on monitoring results, any non-compliance, inefficiencies, or areas where goals are not being met must be addressed through corrective actions (e.g., modifying practices, replacing equipment, implementing new technologies).

As a component of an adaptive management approach, the monitoring process is dynamic. This entails continuously evaluating and enhancing procedures in light of results monitoring. The implementation tactics should be modified in the event that new information becomes available or circumstances change.

Providing regular updates on environmental performance to stakeholders (e.g., public, regulatory bodies, investors). Reports must include detailed data on progress toward environmental goals, compliance with regulations, and any corrective actions taken.

6| ENVIRONMENTAL MANAGEMENT MEASURES

The potential environmental impacts that might occur throughout the fuel retail facility's site construction, maintenance, operation, and eventual site closure will be examined in this section. Activities related to maintenance and potential site closure have impacts that are comparable to those of construction activities.

6.1 AIR QUALITY AND DUST POLLUTION

CONSTRUCTION / MAINTENANCE PHASE

Dust may be produced during the construction and maintenance activities; and might be worsened when strong winds occur. These are expected to be site specific and could potentially pose a slight nuisance to the neighbouring properties. In general, construction and maintenance activities of the fuel facility will have minimal impact on the surrounding air quality.

Proposed Mitigation Measures

- ❖ Ensure measures are in place to minimise dust generation during these phases.
- ❖ Use appropriate dust suppression measures when dust generation is unavoidable, e.g. dampening with water, particularly during prolonged periods of dry weather.
- ❖ Vehicles should not be allowed to idle for unnecessarily long periods of time.
- ❖ Excavation, handling and transport of materials must be avoided under high wind conditions.
- ❖ Dust suppression measures (e.g. dampening with water) may be required from time to time, should dust become a nuisance.

Monitoring Strategy	Regular visual inspection
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Air quality around the site could be impacted by exhaust fumes from the vehicles accessing the facility. Hydrocarbon vapours will be released during delivery and dispensing of fuel, as liquid displaces the gaseous mixture in the tanks. In terms of fuel storage tanks, the vapours will be released through vent pipes on the tanks.

Vapour emissions are wasteful in terms of product loss and also add volatile organic compounds (VOCs) to the atmosphere, which contribute to the formation of photochemical smog. This is the haze that can be seen over cities on a warm summer's day. Fuel vapours are also a significant source of benzene, a known carcinogen for humans.

Proposed Mitigation Measures

- ❖ Vent pipes should be placed in such a manner as to prevent impact on potential receptors.
- ❖ Use vapour recovery equipment and techniques to avoid air pollution and minimise fuel loss.
- ❖ Ensure fuel is delivered in the forecourt containment area, and should not contaminate stormwater or land.
- ❖ Encourage reduction of engine idling at the site.

- ❖ Regular air quality monitoring should be conducted at the facility.
- ❖ Keep a complaints register regarding vapour smells at the site; and act on it if becomes a regular complaint.

Monitoring Strategy	<ul style="list-style-type: none"> ▪ Ensure that emissions from vehicles entering and leaving the station comply with local air quality standards. ▪ Monitoring of fuel vapor emissions during refueling to prevent air pollution and ensure that vapor recovery systems are working effectively.
Responsible Party	Uukwangula Filling Station CC & Contractors

6.2 NOISE POLLUTION

CONSTRUCTION / MAINTENANCE PHASE

Vehicles and equipment will be utilised during this phase, which may will generate noise. It is expected that the noise generated will be localised and will not have a significant impact on any third parties.

Proposed Mitigation Measures

- ❖ Ensure the use of construction vehicles and equipment that emit reduced noise levels.
- ❖ Ensure proper maintenance is conducted on vehicles to ensure the reduction of noise emission.
- ❖ The construction staff should be equipped with ear protection equipment.
- ❖ Audio equipment (if any) should not be played at levels considered intrusive by others.
- ❖ Construction activities will be limited to a period between 07h00 and 19h00.

Monitoring Strategy	Regular inspection.
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Noise pollution already exists around the site in the form of noise generated from vehicles using the C41 road.

Proposed Mitigation Measures

- ❖ Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00).
- ❖ Loud music from vehicles fueling up should be restricted.
- ❖ Maintain the grievance mechanism to capture public perceptions and complaints with regard to noise impacts, track investigation actions and introduce corrective measures for continuous improvement.

Monitoring Strategy	<ul style="list-style-type: none"> ▪ Monitor noise levels to ensure that they are within the regulatory limits, especially from equipment like air compressors, pumps, or backup generators. ▪ Managing operational hours to minimize the impact of noise on surrounding communities.
Responsible Party	Uukwangula Filling Station CC & Contractors

6.3 HEALTH AND SAFETY

CONSTRUCTION / MAINTENANCE PHASE

Safety issues could arise from the construction vehicles, equipment and tools that will be used on site during this phases. This increases the possibility of injuries and the contractor must ensure that all staff members are made aware of the potential risks of injuries on site. The presence of equipment lying around on site may encourage criminal activities (theft).

Proposed Mitigation Measures

- ❖ Display telephone numbers of emergency services at the site.
- ❖ Demarcate and barricade any areas which may pose a safety risk (including hazardous substances, deep excavations etc).
- ❖ Enforce the use of appropriate Personal Protective Equipment (PPE) for the right task or duties at all times.
- ❖ Prevent illegal access to the work sites, by implementing appropriate security measures. These security measures must not pose a threat to persons or motorists frequenting the site.
- ❖ Proper barricading and/or fencing around the work sites should be erected to avoid entrance of animals and/or unauthorized persons.
- ❖ Equipment housed on site must be placed in a way that does not encourage criminal activities.
- ❖ The contractor must ensure that first aid kits are available on site at all times.

Monitoring Strategy	<ul style="list-style-type: none"> ▪ Ensure proper procedures for handling hazardous materials like fuel, oil, and chemicals. ▪ Make sure employees use proper personal protective equipment (PPE) during operations.
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

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

Proposed Mitigation Measures

- ❖ Emergency response procedures should be in place so as to alert the employees on how to react to fire and explosions incidents.
- ❖ Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises.
- ❖ Operators must be properly trained on safety and health issues at the site.
- ❖ Well stocked first aid box which is readily available and accessible should be available at the site.
- ❖ Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises.
- ❖ Ensure sufficient water is available all the time for fire-fighting purposes.
- ❖ Ensure that electrical wiring of the facility is installed and approved by a qualified electrician who will issue a Certificate of Compliance.
- ❖ Adequate lighting within and around the site should be provided, when visibility becomes an issue.

Monitoring Strategy	<ul style="list-style-type: none">▪ Ensure proper procedures for handling hazardous materials like fuel, oil, and chemicals.▪ Make sure employees use proper personal protective equipment (PPE) during operations.
Responsible Party	Uukwangula Filling Station CC & Contractors

6.4 TRAFFIC

CONSTRUCTION / MAINTENANCE PHASE

The site is situated along the C41 road in Uukwangula. Construction and maintenance related activities are expected to have a minimal impact on the movement of traffic along these road.

Proposed Mitigation Measures

- ❖ Speed limit warning signs must be erected to minimise accidents.
- ❖ Construction vehicles and machinery must be tagged with reflective signs or tapes to maximise visibility and avoid accidents.
- ❖ Where feasible, Construction vehicles should not travel to and from the site during peak times (07h00 to 09h00 and 16h00 to 18h00), to minimise impacts on traffic.
- ❖ Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside.

Monitoring Strategy	Observations of the traffic flow at the site.
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Although negligible, a slight increase in traffic will be experienced along the C41 road, due to vehicles frequenting the site.

Proposed Mitigation Measures

- ❖ Speed limits and road signs as set out by national traffic regulations should be adhered to in order to minimise accidents.
- ❖ Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00).

Monitoring Strategy	Strict delivery times monitoring. Observation of traffic by the Manager or Supervisor.
Responsible Party	Uukwangula Filling Station CC & Contractors

6.5 GROUNDWATER CONTAMINATION

CONSTRUCTION / MAINTENANCE PHASE

Groundwater quality could be impacted through leachate of petroleum, chemical, harmful and hazardous substances. In particular, oil leakages, diesel, lubricants and grease from construction vehicles and equipment used during this phase may occur. Care must be taken to avoid contamination of soil and groundwater.

Proposed Mitigation Measures

- ❖ Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel).
- ❖ Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles, equipment and machinery.

Monitoring Strategy	Regular visual inspection
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Spillages might occur during delivery of fuel; and overfilling of vehicles at the site. Overfilling of underground storage tanks may also take place during fuel delivery.

The statistics of most boreholes in the area indicate shallow drilled boreholes (less than 6 mbgl). This is indicative of perched aquifer targets with good water quality. This groundwater resources are of crucial importance for local communities and should be protected at all cost.

Proposed Mitigation Measures

- ❖ Ensure that fuel is delivered in the spill containment areas, and must not contaminate stormwater systems or land.
- ❖ Proper monitoring of the product levels must take place to eliminate overfilling.
- ❖ All operational surfaces at the facility must be installed with spill containment areas.
- ❖ Ensure that any petroleum products, such as grease, waste oils and lubricants are contained in containment structures (e.g. plastic liners, drip trays etc.).
- ❖ Avoid discharge of pollutants (such as cement, concrete, lime, chemicals, contaminated waste water or leachate) into stormwater channels and water courses.
- ❖ All hazardous wastes generated in the project area should be safely contained, transported and disposed of or treated at a designated hazardous waste disposal or bioremediation facility.
- ❖ Equipment and materials to deal with spill cleanup must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures.
- ❖ Develop and implement a groundwater monitoring system and programme, with the aim of monitoring possible contamination to the water resources.
- ❖ Groundwater monitoring boreholes installed should be sampled and analysed periodically.
- ❖ Regular tank and pipeline tightness inspections are advised to eliminate the risk of impact on the environment due to leakages.

Monitoring Strategy	<ul style="list-style-type: none">▪ Check for leaks in underground storage tanks that could contaminate the soil or groundwater.▪ Periodically sample nearby groundwater to ensure that no pollutants from the station are leaching into the soil or groundwater sources.
Responsible Party	Uukwangula Filling Station CC & Contractors

6.6 SURFACE WATER CONTAMINATION

CONSTRUCTION / MAINTENANCE PHASE

The site is relatively flat with a gentle slope to the east. Drainage in the area is poorly developed and runoff usually collects in depressions (oshanas and pans). Surface water in these depressions are normally filled up during the rainy seasons, which is often used for animal watering. Contaminants in the form of chemicals and petroleum products (i.e. oil leakages, hydrocarbon fuel, lubricants and grease) from construction vehicles, equipment and machinery during construction and maintenance activities may put these water bodies at risk.

Proposed Mitigation Measures

- ❖ Use drip trays, liners or concrete floors when evidence of leaks are observed on construction vehicles or equipment.
- ❖ Remove leaking vehicles from project location immediately.

- ❖ No servicing and maintenance of vehicles and/or equipment should be conducted on site.
- ❖ Any spillage of hazardous substances including fuel, oil, paint or cleaning solvent must be cleaned up immediately and disposed of at a designated disposal facility.
- ❖ Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into the nearby water bodies and drainage lines.
- ❖ Contain contaminated water from batching operations and allow sediments to settle before being disposed of as waste water.
- ❖ Stabilize cleared areas as soon as possible to prevent and control surface erosion.
- ❖ Proper environmental awareness and remedial response training of contractors must be conducted on a regular basis.

Monitoring Strategy	Regular visual inspection. Surface water quality monitoring in cases of evident pollution.
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Spillages might occur during fuel delivery to the underground storage tanks from road transport tanker trucks. This may also occur during filling of vehicles. Spillages and leakages may also occur due to failure of reticulation pipelines or storage tanks. Contaminated soil might pose a risk to surface water.

Proposed Mitigation Measures

- ❖ Proper containment mechanisms installed should be able to contain any spillages that might occur during the operation of the facility.
- ❖ Use drip trays, linings or concrete floors when evidence of leaks are observed on construction vehicles or equipment.
- ❖ Remove leaking vehicles from project location immediately.
- ❖ The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
- ❖ Ensure all stormwater drains or channels are clear of litter or obstructing material.
- ❖ Remove all excess sedimentation, rubble and any other waste material present in the waterway and dispose of in a suitable manner to ensure proper drainage runoff.
- ❖ Ensure that stormwater management systems are regularly maintained and tested, and are in good working order.
- ❖ Proper monitoring of the product levels in the tanks must take place to eliminate overfilling.
- ❖ Proper training of the operators on site is vital.

Monitoring Strategy	Regular visual inspection. Surface water monitoring sampling for hydrocarbon pollution
Responsible Party	Uukwangula Filling Station CC & Contractors

6.7 WASTE GENERATION

CONSTRUCTION / MAINTENANCE PHASE

Waste material will be generated during the construction and maintenance activities of the facility. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during this phase.

Proposed Mitigation Measures

- ❖ Ensure that sufficient weather- and vermin- proof bins / containers are present on site for the disposal of solid waste
- ❖ Ensure that no excavated soil, refuse or building waste generated on site are placed, dumped or deposited on adjacent/surrounding properties or land.
- ❖ Waste must be disposed of at a suitable waste disposal site. Clear dumping area with the Uukwangula Town Council.

Monitoring Strategy	Regular inspection and monitoring of housekeeping procedures
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

Waste such as contaminated soil, litter, empty cans of engine oil and other similar products will be generated during the operational phase.

Proposed Mitigation Measures

- ❖ Contamination of soil should be prevented through the use of containment areas as provided.
- ❖ Any contaminated soil generated must be contained and disposed of, or bioremediated accordingly.
- ❖ Waste bins must be available at the facility at all times.
- ❖ Waste must be appropriately collected and disposed of at an approved appropriate waste disposal site.
- ❖ Oil-water separator effluent originating from storm water runoff, tank bottoms and washing activities should be separated before disposal of the water.
- ❖ Regular monitoring of the oil-water separator outflow must be conducted.

Monitoring Strategy	Regular inspection and monitoring of housekeeping procedures
Responsible Party	Uukwangula Filling Station CC, Contractors

6.8 ECOLOGICAL IMPACTS

CONSTRUCTION / MAINTENANCE PHASE

The project site itself is free of conservation worthy vegetation.

Proposed Mitigation Measures

- ❖ Disturbance of areas outside the designated working zone is not allowed.
- ❖ No vegetation should be removed outside the designated project area.

Monitoring Strategy	Regular site inspection
Responsible Party	Uukwangula Filling Station CC & Contractors

OPERATIONAL PHASE

The site is already built-up with very little vegetation present. The operations of the proposed facility will have minimal impacts on fauna and flora.

Proposed Mitigation Measures

- ❖ The operational activities would not exceed the demarcated area of the service station.

Monitoring Strategy	Regular site inspection
Responsible Party	Uukwangula Filling Station CC & Contractors

7| CONCLUSION

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed fuel retail facility. Monitoring of surface and groundwater pollution should be conducted regularly.

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

Environmental audits should be carried out to ensure compliance of the EMP and environmental regulations of Namibia. Parties responsible for non-conformances of the EMP will be held responsible for any rehabilitation that may need to be undertaken.

According to Environmental Management Act No. 7 of 2007, the environmental clearance is only valid for three years. Therefore, it is the proponent's responsibility to provide an updated EMP document and submit an application for permit renewal before the permit expires.