

## **ECC RENEWAL**

APP: 7009

# **Environmental Management Plan (EMP)**



## **FOR THE CONTINUED OPERATION OF WALVIS BAY EXPRESS SERVICE STATION**

**Compiled by:**



**ACE PROJECTS CONSULTANTS**  
P.O. Box 20750 Windhoek  
Tel: +264811245840  
Tel: +264816122888  
info@aceprojects.co

**Compiled for:**

**Walvis Bay Express Service Station**  
P.O. Box 4356, Vineta, Swakopmund  
Tel: +264 811287444

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## GLOSSARY

<b>ENVIRONMENT</b>	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.
<b>ENVIRONMENTAL MANAGEMENT</b>	A management process which seeks to ensure, as far as possible, that no avoidable impact is caused to the environment and that when this is unavoidable that the consequences are understood prior to the impact being caused and that the impact is then mitigated as far as possible.
<b>GROUNDWATER</b>	Water located beneath the earth's surface in soil pore spaces and in the fractures of rock formations
<b>HAZARDOUS WASTE</b>	Waste that poses substantial or potential threats to public health or the environment.
<b>MITIGATION</b>	The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts.
<b>NO-GO AREA</b>	Areas where all construction activities and related matters are prohibited.
<b>POLLUTION</b>	Any change in the environment caused by substances, radioactive or other waves; or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.
<b>REHABILITATION</b>	Restoring the disturbed area to more or less the natural set up.
<b>SITE</b>	An area of ground where the service station is developed.

## **1. INTRODUCTION and BACKGROUND**

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This Environmental Management Plan (EMP) serves as a managing tool for the operation of the existing fuel retail facility in Walvis Bay. The EMP is developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development. The service station was previously issued with an ECC in 2019.

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.

In this report, the *Contractor* refers to (Walvis Bay Express Service Station) and its sub-contractors.

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 Walvis Bay Express Service Station and the contractor in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ The operation of the retail facility entails:
  - Transport of fuel supply with road transport tanker trucks.
  - The dispensing of fuel to vehicles.

## **2. LEGISLATIVE FRAMEWORK**

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### **❖ *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.

### ❖ ***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*

### ❖ ***Water Resources Management Act of Namibia (2004)***

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*

### ❖ ***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 the private sector, should be subjected to the established EA procedure as set out in Figure 2.

*Line Ministry: Ministry of Environment and Tourism*

❖ ***Draft Pollution Control and Waste Management Bill***

The existing project of the Walvis Bay Express Service Station at Walvis Bay, 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.

❖ ***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*

❖ ***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. ENVIRONMENTAL MANAGEMENT STRUCTURES

The Contractor and / or its agents will be responsible for environmental management on site during the operational period. For the purpose of this report,

- ❖ the *Project Personnel* refers to the employees, staff and suppliers responsible for the *operations activities* of Mondesa Service Centre.
- ❖ the *Contractor* (and its sub-contractors) refers to construction personnel responsible for the *site upgrade activities* and/or *maintenance activities* at the project site.

In addition surrounding residents, tenants or land owners must be notified in advance of any potentially disturbing activities.

An independent environmental consultant will need to act as the ECO and conduct inspections of the operational activities and EMP implementation. After each inspection, the ECO will produce a monitoring report that will be submitted to the environmental manager (and Ministry of Environment and Tourism (Department of Environmental Affairs) if required). Relevant sections of the minutes of site meetings will be attached to the monitoring report.

Roles, responsibility and authority shall be defined, documented and communicated in order to facilitate effective environmental management through implementation of the EMP. Management shall provide resources essential to the implementation and control of the EMP including: human resources, technology, and financial resources.

#### 3.1 Responsibility Matrix

The responsibility matrix table below will be completed upon contract award.

**Table 1. Responsibility Matrix**

Function	Name / Mobile Number	Responsibility
<b>Environmental Manager (EM)</b>		<ul style="list-style-type: none"> <li>▪ Overall management of project and EMP implementation.</li> <li>▪ Oversees site works, liaison with Contractor, ESO and ECO.</li> </ul>
<b>Environmental Control Officer (ECO)</b>		<ul style="list-style-type: none"> <li>▪ Implementation of EMP and liaison between Fuel Supplier, Department of Environmental Affairs (MET), Walvis Bay Municipality, Contractor and Landowners/stakeholders</li> </ul>
<b>Environmental Site Officer (ESO)</b>		<ul style="list-style-type: none"> <li>▪ Interaction with ECO, landowners and labourers. Must understand the EMP</li> </ul>
<b>Contractor</b>		<ul style="list-style-type: none"> <li>▪ Implementation and compliance with recommendations and conditions of the EMP, Appoints dedicated person (ESO) to work with ECO</li> </ul>

The general roles and responsibilities of various parties during the Construction Phase of the project are outlined below.

### **3.2 Roles of the Environmental Manager (EM)**

The EM (proponent's representative) will act as the proponent's on-site implementing agent and has the responsibility to ensure that the Client's responsibilities are executed in compliance with the relevant legislations. Any on-site decisions regarding environmental management are ultimately the responsibility of the EM. The on-site EM shall assist the ECO where necessary and will have the following responsibilities in terms of the implementation of this EMP:

- ✓ Be fully knowledgeable with the contents of the Operational EMP;
- ✓ Review and authorise 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 the ESO 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).

### **3.3 Roles of the Environmental Control officer (ECO)**

The ECO for the site is an independent environmental consultant appointed by Ocean Property Development CC to monitor and review the on-site environmental management and implementation of this EMP on the site.

The duties of the ECO:

- ✓ Ensure that all operational or possible decommissioning activities on site are undertaken in accordance with the EMP;
- ✓ Undertake compliance audits against the EMP and conditions of the Environmental Authorisation.

- ✓ Provide support and advice to the project team, 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 in conjunction with the ESO 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 Environmental Manager (as required).
- ✓ Provide environmental training for key project personnel (in communication with Environmental Manager).
- ✓ Prepare audit reports (and submit reports to the relevant authority as required).

#### **3.4 Roles of the Environmental Site Officer (ESO)**

The ESO is expected to administer and control all environmental matters relating to the project. The ESO will conduct the following:

- ✓ Ensure implementation of the EMP.
- ✓ Ensure that the latest EMP documents are filed and readily accessible as required.
- ✓ Ensure communication of EMP requirements to relevant project, contractor and sub-contractor personnel as required for EMP implementation.
- ✓ Monitor compliance of EMP implementation and compliance of all contractors and sub-contractors.
- ✓ Facilitate environmental induction of all project staff and either deliver or coordinate delivery of all such training that would be required for the effective implementation of the EMP. This includes identifying additional project training requirements and implementing the training programme.
- ✓ Maintain training records for all project personnel including contractors.
- ✓ Maintain environmental incidents and stakeholder complaints register.

- ✓ Undertake environmental system reviews, site inspections, audits and other verification activities to assure that the EMP implementation is at an optimal level.
- ✓ Report significant incidents internally and externally as required by law and the conditions of authorisation.
- ✓ Investigate incidents and recommend corrective and preventative actions.
- ✓ Provide support and advice to the contractor and all sub-contractors in the implementation of environmental management procedures and corrective actions.
- ✓ Ensure that monitoring programs, which assess the performance of the EMP, are implemented.
- ✓ Ensure maintenance of site document control requirements.
- ✓ Assess the efficacy of the EMP and identify possible areas of improvement or amendment required within the EMP.

### **3.5 Roles of the Contractors**

The ECO, will be responsible for monitoring compliance with the Environmental Management Plan, and liaising with the EM. The contractors shall ensure that all construction staff, sub-contractors, suppliers, etc. are familiar with, understand and adhere to the EMP during maintenance. 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 ECO to instruct the EM to have the employee removed from the site. The EM 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 EM 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. No extension of time will be granted for such delays and all costs will be borne by the Contractor

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 Environmental Manager 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 ECO and/or EM 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 ECO is kept in the site office;
- ✓ Ensuring that a register of all public complaints is maintained; and
- ✓ Ensure that all employees, including those of sub-contractors receive training before the commencement of work so that they can constructively contribute towards the success full implementation of the environmental requirements of the EMP.
- ✓ 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;
- ✓ Provide periodic checklists to the EM and ECO.

The Contractor will nominate an Environmental Site Officer (ESO) who will be responsible for ensuring that the requirements of the EMP and the associated documents are complied with on the construction site on behalf of the Contractor. The ESO shall:

- ✓ Identify areas of non-compliance and recommend measures to rectify them in consultation with the Project Manager, the EM and the ECO as required;
- ✓ Ensure that environmental problems are remedied timeously and to the satisfaction of the Project Manager, the EM and the ECO as required;
- ✓ Set up activity based method statements prior to the start of relevant construction activities and submit these to the Project Manager, the EM and the ECO as required;
- ✓ Perform ongoing environmental awareness training of the Contractor's site personnel.

## 4. IMPLEMENTATION AND MONITORING

### 4.1 Possible Decommission/Maintenance Phase Procedures

#### 4.1.1 Environmental Awareness Training

Ocean Property Development CC have the responsibility to ensure that all persons involved in the project are aware of, and are familiar with, the environmental requirements for the project. All project personnel, including contractors and sub-contractors are required to receive training of a type and level of detail that is appropriate for the environmental aspects of their work. Training shall be held during normal working hours, at a suitable venue. All attendees shall remain for the duration of the training and, on completion, sign an attendance register that clearly indicates participants' names. A copy of the register shall be handed to the ECO. As a minimum, all personnel are required to complete the training requirements stipulated in Table 1 below.

**Table 2. Environmental Training Requirements**

Training and Induction Requirements	
Training Requirement	Frequency
<p><b>Site Induction</b> - the purpose of the induction is to ensure that, as a minimum, all on-site personnel understand the EMP in terms of:</p> <ul style="list-style-type: none"> <li>Key issues relating to the project.</li> <li>Relevant conditions of the Environmental Authorisation.</li> <li>Location and protection of environmentally sensitive areas (if any).</li> <li>Waste management and minimisation.</li> <li>Minimising potential impacts to air, noise and water quality.</li> <li>Surface and groundwater contamination.</li> <li>Spill control measures.</li> <li>Environmental Emergency Plan.</li> <li>Incident reporting procedures.</li> <li>Roles and responsibility relating to environmental management.</li> </ul>	<p><b>Construction Phase:</b> prior to commencement of work by staff and / or contractors.</p>

Training and Induction Requirements	
Training Requirement	Frequency
<b>Pre-Start Meeting</b> – Pre-start meetings should be undertaken prior to commencement of a new activity in order to discuss the planned work and operational aspects of the tasks. Health, safety and environmental issues and controls should be discussed and understood.	<b>Maintenance/Possible Decommission Phase:</b> As required.

All senior and supervisory staff members shall familiarise themselves with the full contents of the EMP. They shall know and understand the specifications of the EMP and be able to assist other staff members in matters relating to the EMP.

#### 4.1.2 Method Statements

The EMP provides the overall project strategy for management of environmental issues; however, a Construction Method Statement (CMS) will address environmental management issues at a site level. The CMS provides an environmental manual for use by management and construction staff involved in the works. It addresses the environmental issues that are specific to an activity and/or site. CMS's should be produced for all major construction activities, and will typically provide detailed descriptions of items including, but not necessarily limited to:

- ✓ Nature, timing and location of activities;
- ✓ Procedural requirements and steps;
- ✓ Management responsibilities;
- ✓ Material and equipment requirements;
- ✓ Transportation of equipment to and from site;
- ✓ Develop methods for moving equipment/material while on site;
- ✓ How and where material will be stored;
- ✓ Emergency response approaches, particularly related to spill containment and clean-up;
- ✓ Response to compliance/non-conformance with the requirements of the EMP; and

Any other information deemed necessary by the EM/ECO.

The contractor shall not commence the activity until the Method Statement has been approved and shall, except in the case of emergency activities, allow a period of two weeks for approval of the Method Statement by the ECO and EM. Such approval shall not unreasonably be withheld.

The ECO and EM may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the ECO and EM, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted specifications.

Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. The contractor shall carry out works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the contract.

Based on the specifications in this EMP, the following Method Statements are required as a minimum (but not limited to these):

- ✓ Site clearing;
- ✓ Site layout and establishment;
- ✓ Hazardous substances;
- ✓ Cement and concrete batching (for each operation)
- ✓ Traffic accommodation;
- ✓ Solid waste control system;
- ✓ Wastewater control system;
- ✓ Erosion remediation and stabilization (for both operations);
- ✓ Fire control and emergency procedures.

## ***4.2 Site Establishment during Maintenance***

### **4.2.1 Demarcation of the Site**

The 'site' here refers to all areas required for construction purposes. Prior to any construction on site the approved building site shall be demarcated for the development as per the approved SDP.

The site will be properly demarcated and or temporarily fenced off as agreed with the ECO.

The EM in co-operation with the ECO will be responsible for the demarcation of the outer perimeter of the construction site. The method of demarcation of the outer perimeter of the construction site. The method of demarcating the boundaries shall be determined by the contractor and agreed to by the EM prior to any work being undertaken. The contractor shall maintain the demarcation line and ensure that materials used for construction on the site do not blow on or move outside the site

and environs, or pose a threat to people. The boundaries of the site shall be demarcated prior to any work commencing on the site. The site boundary demarcation fence shall be removed when all construction work is completed.

The contractor shall ensure that all his plant, labour and materials remain within the boundaries of the site, unless otherwise agreed in writing with EM. Failure to do so may result in the EM requiring the contractor to fence the boundaries of the site with wire mesh at his own expense to the satisfaction of the EM and the municipality. It will be the responsibility of the contractor to decide on an appropriate system of protective fencing for the site.

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.

#### **4.2.2 Movement of Construction Personnel and Equipment**

The contractor shall ensure that all construction personnel and equipment remain within the demarcated construction site at all times. Where construction personnel and/or equipment wish to move outside the boundaries of the site other than normal access to the road for loading and access purposes, the contractor shall obtain written permission from the EM.

#### **4.2.3 Location of Construction Camps**

Construction camps include workshops, temporary stockpile sites, fuel installations, other storage and work areas, required by the contractor, sub-contractors and suppliers. All construction camps will be positioned in a demarcated areas approved by the ECO.

#### **4.2.4 Ablution Facilities**

The contractor shall provide the necessary ablution facilities for all site personnel. The sitting of toilets shall be agreed with the EM. The contractor shall supply an adequate number of chemical or other suitable and approved toilets throughout the site where construction personnel will be operating. The toilets shall be secured to prevent them from blowing over, and the doors shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilets shall be cleaned and serviced regularly.

The contractor shall ensure that any chemicals and/or waste from the toilets is not spilled on the ground at any time. Should there be spillage of chemicals and/or waste, the EM shall require the contractor to place the toilets on solid base or containment structures with sumps. The contractor will be required to provide a suitable and approved and to remove accumulations of chemicals and waste from

the site and dispose of it at an appropriate waste disposal site or sewage plant base at his own expense.

#### **4.2.5 Living Areas**

The accommodation of construction staff (if necessary) shall be agreed with the ECO and EM. One campsite within the existing campsite, may be allocated for construction workers subject to strict control.

#### **4.2.6 Eating Areas**

The contractor shall, in agreement with the EM, designate specific areas for eating and shall provide adequate refuse bins at all places. The refuse bins shall be cleaned on a daily basis.

#### **4.2.7 Provision of Water**

The contractor shall be responsible for providing construction, drinking and washing water for his staff. Construction water shall be obtained from locations as agreed with the ECO and EM.

### ***4.3 Material Handling and Storage***

#### **4.3.1 Refuelling of Equipment**

Unless allowed by the Project Specification, fuel shall not be stored on site but shall be transported to the site as and when required.

Where reasonably practical, plant shall be refuelled at a designated re-fuelling area or at the workshop as applicable. If it is not reasonably practical then the surface under the temporary refuelling area shall be protected against pollution to the reasonable satisfaction of the ECO/EM prior to any refuelling activities. The contractor shall ensure that there is always a supply of absorbent material (not saw dust) readily available to absorb/breakdown and where possible is designed to encapsulate minor hydrocarbon spillage. The quantity of such material shall be able to handle a minimum of 200litre of hydrocarbon liquid spill. This material must be approved by the ECO/EM prior to any refuelling or maintenance activities.

A Method Statement must be provided detailing how these liquids will be stored, handled and disposed of. The Walvis Bay's Fire Department must be informed and consulted for fire regulations.

#### **4.3.2 Lubricant Storage**

No bulk storage of lubricant will be permitted on site. Small containers required by the contractor for daily use have to be either sealed or have tightly fitted caps. All containers must be closed unless in use. Decanting of lubricants must be carried out in a specific area that has been previously identified and suitably protected. The floor of any storage of decanting area shall be impervious (such as concrete) to

lubricants and kept clean at all times. The floor shall slope towards a central sump, all liquids collected in the sump shall be disposed of as hazardous waste, at the nearest hazardous waste disposal site.

Lubricants shall be stored under cover in a no smoking area. All lubricant impregnated cotton waste and rags shall be promptly disposed of and handled as hazardous waste.

#### **4.3.3 Petroleum, Chemical, Harmful and Hazardous Materials**

The contractor shall comply with all relevant national and local legislation with regard to storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials. The contractor shall obtain the advice of the manufacturer with regard to the safe handling of such substances and materials.

The contractor shall provide the EM with a list of all petroleum, chemical, harmful and hazardous substances and materials on site, together with storage, handling and disposal procedures for these materials.

The contractor shall ensure that information on all petroleum, chemical, harmful and hazardous substances are available to all personnel on site. The contractor shall furthermore be responsible for the training and education of all personnel on site who will be handling the material about its proper use, handling and disposal. A dangerous material datasheet should be available on site.

The contractor shall submit method statements detailing the substances / materials to be used, together with the storage, handling and disposal procedures of the materials.

#### **4.4 Solid Waste Management**

The Contractor shall institute a waste control and removal system for the site that is acceptable to the ECO. The Contractor shall not dispose of any waste and/or construction debris by burning, or by burying. All waste shall be disposed of off site at an approved landfill site. Consultation with the Walvis Bay's Solid Waste Management Division should be conducted in this regard. The Contractor shall supply the ECO with a certificate of disposal.

The Contractor shall supply waste bins/skips where construction personnel are working. The bins shall be secured in such a manner as to prevent their contents blowing out. The Contractor shall ensure that all personnel immediately deposit all waste in the waste bins for removal by the Contractor. 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, banded areas, the location of which shall be determined on site in conjunction

with the ECO. The banded areas shall be clearly marked. Such waste shall be disposed of off site at the nearest hazardous waste disposal site.

#### ***4.5 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 are carefully controlled.

The contractor shall submit a construction procedure for mixing of concrete for approval by the ECO/EM prior to commencing any such work. Concrete mixing shall only take place in agreed specific areas on site. Concrete shall not be mixed directly on the ground below the 1:100 floodline.

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.

Where exposed aggregate finishes are specified the contractor shall collect all cement-laden water and store it in conservancy tanks for disposal off site at an approved disposal site.

All visible remains of excess concrete shall be physically removed immediately and disposed of as waste. Washing the visible signs into the ground is not acceptable. All excess aggregate shall also be removed.

All excess concrete shall be removed from site on completion of concrete works and disposed of. Washing of the excess into the ground is not allowed. Should it be necessary to clean concrete tankers/trucks on site, a method statement has to be approved by the ECO prior to such activity. No cement or concrete laden water will be permitted to be drained directly into any watercourse.

#### ***4.6 Surfacing Materials***

Over spray of bitumen products outside of the road surface and onto roadside vegetation shall be prevented using a method approved by the EM. All areas to be surfaced with any bitumen products must be demarcated and no overspray will be permitted. When heating bitumen products, the contractor shall take cognizance of appropriate fire control measures.

Stone chip / excess gravel shall not be left on the road/ paved area verges. This shall be swept and/or raked into piles and removed to an area approved by the EM. Water quality from runoff from any fresh bitumen surfaces shall be monitored by the EM and remedial actions taken where necessary. All excess aggregate shall also be removed.

#### ***4.7 Lighting Management***

The Contractor shall ensure that any lighting installed on the site for his activities does not interfere with road traffic, or cause an avoidable nuisance to the surrounding properties, or other users of the area. Lighting installed shall, as far as practically possible, be energy efficient. Lighting utilized on site shall be turned off when not in use.

#### ***4.8 Waste Water Treatment***

##### **4.8.1 Discharge of Construction Water**

Construction water in this report, refers to all water affected by construction activities. The Contractor shall construct and operate the necessary collection facilities to prevent pollution. The Contractor shall dispose of collected waste water in a manner agreed with the ECO.

The Contractor may discharge “clean” water overland and allow this water to filter into the ground. However, he shall ensure that he does not cause erosion as a result of any overland discharge. No water shall be allowed to drain onto neighbouring properties or directly into any nearby streams or rivers.

No washing of plant, equipment, concreting equipment etc. shall be permitted on site unless approved by the ECO based on a method statement which deals specifically with the issue of potential pollution of the streams, rivers or stormwater systems.

Should it be necessary to dispose of contaminated water into the municipal sewer or storm water system, written permission is required from the relevant municipal department.

A Method Statement is required from the Contractor detailing the management of contaminated water. The Contractor shall notify the ECO/EM immediately of any pollution incidents on Site.

##### **4.8.2 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. Water pollution can be reduced through the establishment of rules and regulations set by the ECO on water usage which will guide workers and visitors during operation and construction. The relevant drainage patterns are addressed in Section 3, and the potential risk to each determined.

The Contractor shall obtain oil absorbent pads, booms and spill kits, or similar designed products or materials to soak up oil, petrol and diesel. These materials shall be readily available for use wherever construction equipment is working. This should also be available at work stations where fuel and lubricants is being offloaded, stored, equipment is filled and serviced. The Contractor shall ensure that he is familiar with the correct use and disposal of any materials designed to soak up petroleum products. Environmental friendly methods will be used during construction e.g.

- ✓ cement batching on boards, no wash water allowed to run off,
- ✓ paint washing in containers to be removed to licensed site,
- ✓ use of environmental friendly paints with low toxicity,
- ✓ use sand filters for paint brush washing and contain cement bags,
- ✓ waste water from paints with potential high environmental impact must be disposed of in accordance with an agreed method with the ECO.

The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, etc. that are to remain in one position for longer than two days shall be placed on drip trays or other similar suitable containment structures. These containment structures shall be watertight and shall be emptied regularly and the contaminated water disposed off-site at a facility capable of handling such waste liquid. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long week ends and holidays.

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

#### ***4.9 Site Clean Up and Rehabilitation***

##### **4.9.1 Site Clean Up**

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

##### **4.9.2 Rehabilitation**

The proponent will undertake all rehabilitation of areas disturbed as a result of activities on site. Especially areas outside the designated project area. Expenses incurred in rehabilitating these areas shall be for the Contractor's account. The estimated cost of rehabilitation will be provided to the Contractor prior to the rehabilitation work commencing.

Due to the urban setting of the project location, very little vegetation is present in the area. However, if deemed necessary, revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed.

#### **4.10 Emergency Procedures**

##### **4.10.1 Fire**

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of activities on site. The Contractor shall report all fires immediately to the municipality and EM.

The Contractor shall be liable for any expenses incurred by any organizations called to assist with fighting fires and for any costs relating to the rehabilitation of burnt areas and/or property, and/or persons should the fire be caused by activities on the site. No open fires for heating or cooking shall be permitted on site.

The Contractor is advised that sparks generated during operations involving welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher immediately available at the site of any such activities and the use of welding curtains.

The Contractor shall be responsible for providing the necessary basic fire-fighting equipment. All equipment shall be maintained in good operating order.

The Contractor shall supply all site offices, workshop areas, materials, stores and any other areas identified by the EM with suitable tested and approved fire fighting equipment. The Contractor shall appoint members of his staff as the fire officer and fire-fighting team. The contractor will train the fire officer and the fire-fighting team. All expenses incurred shall be for the Contractor's account.

The following measures will be followed to reduce the intensity of fires during operational and possible maintenance/decommissioning phase :

Inform workers to perform activities carefully (e.g. some machines create sparks)

- ✓ Restrict smoking to designated areas,
- ✓ Provide fire extinguishers,
- ✓ Restrict fires to designated areas,
- ✓ Emergency response plan related to fuel storage,
- ✓ Emergency fire plan for visitors and staff.

##### **4.10.2 Accidents on Site**

The Contractor shall comply with the Occupational Health and Safety Act, Local Building Regulations (Walvis Bay) and any other national, regional or local regulations with regard to safety on site. The Contractor shall ensure that contact

details of the local medical services are available to the relevant construction personnel prior to commencing work.

#### **4.10.3 Petroleum, Chemical, Harmful and Hazardous Materials**

The Contractor shall ensure that he is familiar with the requirements for the safe storage, handling and disposal of petroleum, chemical, harmful and hazardous materials.

The Contractor shall be responsible for establishing an emergency procedure for dealing with spills or release of these substances. He shall also ensure that the relevant construction personnel are familiar with these emergency procedures.

The Contractor shall submit his emergency procedure to the EM prior to bringing on site any such substances. All spills or accidents involving such materials are to be recorded. The clean up of spills and any damage caused by the spill shall be for the Contractor's account.

#### **4.10.4 Adverse Weather Conditions**

The Contractor shall ensure that any sumps/settling ponds etc. are emptied when necessary and in terms of the agreed method statement. Special care will be taken during rainy periods to prevent their contents from overflowing. The Contractor shall set up a procedure for rapidly emptying any collection points should they be in danger of overflowing.

The Contractor may consider collection points to prevent their filling with rainwater. The measures to be implemented to prevent contamination from wastewater and or polluted storm water shall be addressed in a method statement. The Contractor shall also ensure that rainwater does not run off areas containing pollutants and thus result in a pollution threat. Stockpiles of the fine material such as sand, topsoil material, cement, etc. must also be protected from rain runoff and wind.

The Contractor shall ensure that a procedure is established for dealing with potentially polluted rainwater.

#### **4.10.5 Emergency Advisory Procedures**

The Contractor shall ensure that there is an emergency advisory procedure on site before commencing any operations that may cause damage to the environment. The Contractor shall also ensure that site staffs are familiar with all emergency procedures to be followed.

The Contractor shall ensure that lists of all emergency telephone numbers/contact people are kept up to date, and that all numbers and names are posted at relevant locations at all times.

## **4.11 Compliance Monitoring**

### **4.11.1 Procedures**

The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the EM to impose a penalty. In the event of non-compliance the following recommended process shall be followed:

- ✓ The EM shall issue a notice of non-compliance to the Contractor, stating the nature and magnitude of the contravention. A copy shall be provided to the ECO.
- ✓ The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- ✓ The Contractor shall provide the EM with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. A copy shall be provided to the ECO.
- ✓ In the case of the Contractor failing to remedy the situation within the predetermined time frame, the EM shall impose a monetary penalty based on the conditions of contract.
- ✓ In the case of non-compliance giving rise to physical environmental damage or destruction, the EM shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- ✓ In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMP, disagreement regarding the implementation or method of implementation of conditions of the EMP, etc. any party shall be entitled to require that the issue be referred to specialists for determination.
- ✓ The EM shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

Any non-compliance by the contractor under instructions of the applicant will be regarded as non-compliance by the applicant and the contractor will not be held liable for such action.

### **4.11.2 Offences and Penalties**

Any avoidable non-compliance with the conditions of the EMP shall be considered sufficient ground for the imposition of a penalty. Possible offences, which should result in the issuing of a contractual penalty, include, but are not limited to:

- ✓ Unauthorized entrance into no-go areas e.g. river outside designated construction site;
- ✓ Unauthorized damage to natural vegetation;
- ✓ Unauthorized camp establishment (including stockpiling, storage, etc.);

- ✓ Hydrocarbons / hazardous material: negligent spills / leaks and insufficient storage;
- ✓ Ablution facilities: non-use, insufficient facilities, insufficient maintenance;
- ✓ Late method statements or failure to submit method statements;
- ✓ Insufficient solid waste management (including clean-up of litter, unauthorized dumping etc.);
- ✓ Erosion due to negligence / non-performance;
- ✓ Excessive cement / concrete spillage / contamination;
- ✓ Insufficient fire control and unauthorized fires;
- ✓ Preventable damage to water courses or pollution of water bodies; and
- ✓ Non-induction of staff.

#### **4.11.3 Environmental Monitoring**

Periodic inspections will be performed by the ECO. These will consist of formal reviews of conformance against policies and procedures stated in this document. Inspections will occur on a monthly basis (or as required). Supervisors in all work areas will conduct performance and compliance reviews, using the EMP as guideline to ensure compliance.

#### **4.11.4 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.

#### **4.11.5 EMP Amendments**

The EMP amendments can only be made with the approval of the EM and ECO, and if required ultimately the Office of the Environmental Commissioner. Amendments to the EMP should be liaised to all employees and contractors.

#### **4.11.6 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.

The ESO is responsible for reporting non-conformance with the EMP, to the ECO. The ESO, in consultation with the ECO must, thereafter, undertake the following activities:

- ✓ Investigate and identify the cause of non-conformance.
- ✓ Report matters of non-conformance to Walvis Bay Environmental Department (depending on the severity of the incident).

- ✓ Implement suitable corrective action as well as prevent recurrence of the incident.
- ✓ Assign responsibility for corrective and preventative action.
- ✓ Any corrective action taken to eliminate the causes of non-conformance shall be appropriate to the magnitude of the problems and commensurate with the environmental impact encountered.

#### **4.11.7 Environmental Register**

An environmental register should be kept on site in which incidents related to actual impacts are recorded. This will include information related to incidents as spillages, dust generation and complaints from adjacent neighbours. It should also contain information relating to actions taken. Any party on site may complete the register, however, it is envisaged that the EM, ESO and the contractor(s) will be the main contributors, and who will also be the main parties involved in suggesting mitigation measures.

#### **4.11.8 Site Management**

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

#### **4.11.9 Access Routes and Work Sites**

Vehicular movement, construction trucks and earthmoving equipment will access the construction site from the 3rd Street. No new tracks/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/uncontrolled access to the work sites during both maintenance and possible decommission phase.

Vehicle access will be limited to a single entrance (where necessary) to facilitate control. The entrance will be manned during the operation hours, but will be locked during non-operational hours to prevent unauthorised entry.

A notice board, in two languages or more, must be erected at the entrance and must state the most pertinent site health and safety issues, the operator/responsible person and emergency telephone numbers. 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.

#### **4.11.10 Staff Management**

The Contractor must ensure that their employees have suitable personal protective equipment and properly trained in fire fighting and first aid. Training records must be kept for future references.

## 5. Management of environmental aspects during the Operational phase of the project

### Groundwater

<b>Operational phase</b>	
<b>Description</b>	Spillages might occur during delivery and loading of road transport tanker trucks. This may also occur during Service of vehicles.
<b>Proposed Mitigation Measures</b>	All operational surfaces for fuel storage must be installed with spill containment areas as per the relevant SANS standards (or better). The risk can be lowered further through proper training of staff. All spills must be cleaned up 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.
<b>Proposed Monitoring</b>	Groundwater monitoring sampling for hydrocarbon pollution.
<b>Responsible Party</b>	Walvis Bay Express Service Station

### Surface Water

<b>Operational phase</b>	
<b>Description</b>	Spillages might occur during delivery and loading of road transport tanker trucks. This may also occur during filling of vehicles. Contaminated soil might pose a risk to surface water.
<b>Proposed Mitigation Measures</b>	All spills should be cleaned up as soon as possible. The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
<b>Proposed Monitoring</b>	Regular visual inspection.
<b>Responsible Party</b>	Walvis Bay Express Service Station

### Air quality (including dust)

<b>Operational phase</b>	
<b>Description</b>	Hydrocarbon vapours will normally be released during delivery, as liquid displaces the gaseous mixture in the tanks.
<b>Proposed Mitigation Measures</b>	Vehicle idling time shall be minimised by putting up educative signs. All venting systems and procedures have to be designed according to SANS standards and placed in a sensible manner.
<b>Proposed Monitoring</b>	A complaints register regarding emissions/smell should be kept and acted on if it becomes a regular complaint.
<b>Responsible Body</b>	Walvis Bay Express Service Station

### Health and Safety

<b>Operational phase</b>	
<b>Description</b>	The operations of the fuel retail facility can cause health and safety risks to workers on site. Occupational exposures are normally related to inhalation of fuel vapours and physical contact with fuels.
<b>Proposed Mitigation Measures</b>	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 of the project. Well stocked first aid box which is readily available and accessible should be provided within premises. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises. Workers should be fully equipped with personal protective equipment gear.
<b>Proposed Monitoring</b>	Regular inspection and incident monitoring report evaluation.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## **Noise Pollution**

<b>Operational phase</b>	
<b>Description</b>	Noise pollution already exists around the site in the form of noise generated from vehicles using the Sam Nujoma Street and 18th road.
<b>Proposed Mitigation Measures</b>	Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00). Loud music from vehicles fuelling up should be restricted.
<b>Proposed Monitoring</b>	Strict delivery and collection times. Observation of on-site noise levels by the Manager or Supervisor.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## **Waste Generation**

<b>Operational phase</b>	
<b>Description</b>	Waste in the form of contaminated soil due to spillage might be generated, but should be prevented through the use of containment areas as provided. Litter may also be produced during the operational phase.
<b>Proposed Mitigation Measures</b>	Waste minimization policy should be formulated by Walvis Bay Express Service Station. Regular maintenance of the oil/water separator. Bioremediation of contaminated soil should be enforced and/or hazardous waste must be disposed at Walvis Bay Hazardous waste site. Removal of sand and other material from containment areas. Rubbish must be collected and disposed at a suitable waste disposal site.
<b>Proposed Monitoring</b>	Regular visual inspection. Containment area inspections and monitoring of the oil/water separators.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## Traffic

<b>Operational phase</b>	
<b>Description</b>	Traffic around the service station
<b>Proposed Mitigation Measures</b>	Delivery of fuel products by heavy-duty tankers should be limited to normal working hours (07h00 to 19h00).
<b>Proposed Monitoring</b>	Strict delivery times monitoring. Observation of traffic by the Manager or Supervisor.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## Ecological impacts

<b>Operational phase</b>	
<b>Description</b>	Disturbance or impacts on fauna and flora. Very little impacts are expected as the area is already disturbed and earmarked for development.
<b>Proposed Mitigation Measures</b>	Prevent surface water contamination and disturbance of areas outside the designated working zone.
<b>Proposed Monitoring</b>	Regular site inspection.
<b>Responsible Body</b>	Walvis Bay Express Service Station

### Overfilling of tanks and vehicles

<b>Operational phase</b>	
<b>Description</b>	Overfilling of vehicles and fuel storage tanks may take place.
<b>Proposed Mitigation Measures</b>	This impact can be reduced by the installation of spill containment areas around the pumps and through proper training of the operators. Proper monitoring of the product levels in the tanks must take place to eliminate overfilling. Proper training of the operators on site is vital.
<b>Proposed Monitoring</b>	Regular inspection of the level of fuel in tanks.
<b>Responsible Body</b>	Walvis Bay Express Service Station

### Fire and explosion hazard

<b>Operational phase</b>	
<b>Description</b>	Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations and conditions are flammable.
<b>Proposed Mitigation Measures</b>	There should be sufficient water available for fire fighting purposes. Ensure that all fire-fighting devices are in good working order and they are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site.
<b>Proposed Monitoring</b>	Regular inspections should be carried out to inspect and test fire fighting equipment.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## Hydrocarbon Spillages

<b>Operational phase</b>	
<b>Description</b>	Fuel spillages might occur during delivery during the operational phase.
<b>Proposed Mitigation Measures</b>	<p>This impact can be reduced by the installation of spill containment areas around the pumps and through proper training of the operators. All spills must be cleaned up immediately.</p> <p>The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.</p>
<b>Proposed Monitoring</b>	Risk of impact from this can be lowered through proper training of staff and the installation of suitable containment structures. Groundwater monitoring holes should be installed to monitor hydrocarbon groundwater pollution after major spillages.
<b>Responsible Body</b>	Walvis Bay Express Service Station

## **6. CONCLUSIONS**

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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 construction to ensure that the EMP is fully implemented and complied with. The EMP caters for all operational phase, however it will need to be reviewed during all new 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 proposed project. Parties responsible for contravention of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

### **Matrix Consulting Services**

C. Ailonga (MSc Env Sci, Urban Planning, WITS)  
Principal Environmental Specialist  
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