

**UPDATED ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR  
THE PROPOSED TOWNSHIPS ESTABLISHMENT ON PORTION  
161, 162, 163 AND 164 OF THE REMAINDER OF PORTION  
SWAKOPMUND TOWNLANDS NO. 41, SWAKOPMUND,  
ERONGO REGION**



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## DOCUMENT INFORMATION

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**Project title:** Proposed townships establishment on portion 161, 162, 163 and 164 of the remainder of portion B of Swakopmund townlands No.41, Swakopmund, Erongo Region

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**Document:** Updated Environmental Management Plan

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## LIST OF ABBREVIATIONS AND ACRONYMS

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BID:	Background Information Document
DEA:	Directorate of Environmental Affairs
EA:	Environmental Assessment
EAP:	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO:	Environmental Compliance Officer
EIA:	Environmental Impact Assessment
EMA:	Environmental Management Act
EMP:	Environmental Management Plan
ESR:	Environmental Scoping Report
GG:	Government Gazette
GIS:	Geographic Information Systems
GN:	Government Notice
HIV:	Human Immunodeficiency Virus
I&APs:	Interested and Affected Parties
MAWLR	Ministry of Agriculture Water and Land Reform
MEFT:	Ministry of Environment, Forestry and Tourism
NAMPAB:	Namibia Planning Advisory Board
PPE:	Personal Protective Equipment
PR	Proponent Representative
PSC:	Project Steering Committee

## **1. INTRODUCTION**

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The Municipality of Swakopmund has proposed to establish four township developments on portion 161, 162, 163 and 164 of the remainder of Portion B of Swakopmund townlands No.41. The proposed extensions will be known as Swakopmund extension 40, 41, 42 and 43 respectively. The initial EIA was conducted in 2019 and ECC was granted on 13 December 2019 and expired on 12 December 2022.

Since the granting of ECC no development has taken place, thus the development land remains in its natural state. Approval of the proposed township layout has also not yet been obtained from the Urban and Regional Planning Board. Hence, the Municipality of Swakopmund has again appointed Green Gain Consultants cc to update the initial EMP and apply for the renewal of the ECC.

This updated EMP synthesises all the proposed mitigation and monitoring measures, laid out according to the various stages of the project life cycle, with clearly defined follow-up actions and responsibility assigned to specific actors. It provides a link between the impacts identified in the EIA process and the required environmental management on the ground during the project implementation and operation. It is important to note that an EMP is a legally binding document and has been drafted in accordance with the Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations (2012). It should be read in conjunction with the EIA report and contract documentation to ensure the contractor works in an environmentally sensitive manner, thus ensuring that the impacts on the environment and neighboring community are kept to a minimum.

## 2. ABOUT THE PROPOSED DEVELOPMENT

### 2.1 Locality

**Portions 161 to 163** lies on the eastern part of town adjacent to DRC suburb. It is boarded on the east by the highway C28 road to Henties Bay and on its northern part by the railway line.

**Portion 164** also lies on the eastern part of town along the main road (B1) to Windhoek. It is boarded on the east by the Henties Bay road, on the north by the railway line and on the west by the existing general industrial area.

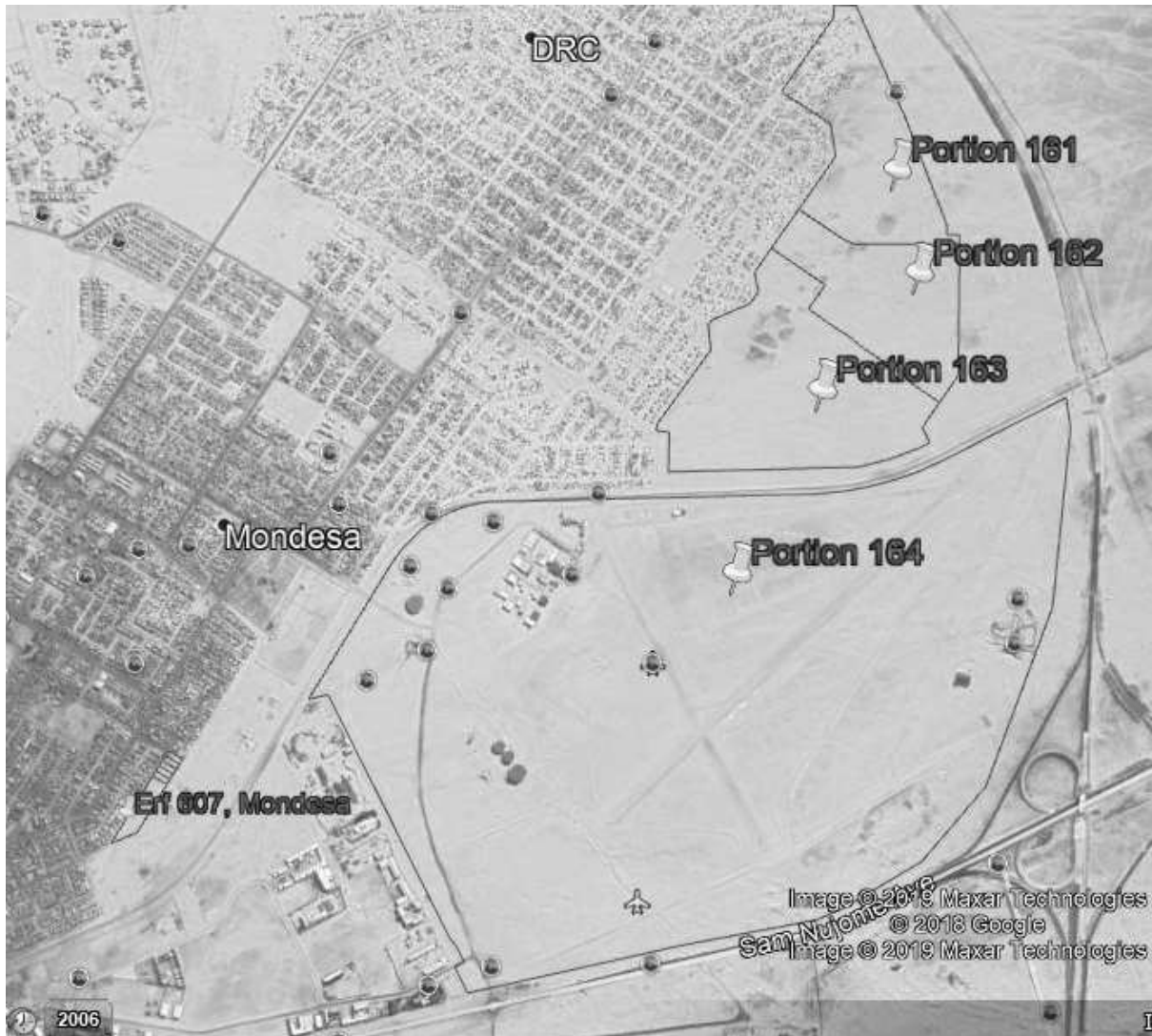


Figure 1: Locality map (Portion 161-164)

## 2.2 Site context

The site for the portions 161, 162 and 163 is currently vacant but partially occupied by informal settlements. Due to its close proximity to the existing developments the site is somehow disturbed with illegal dumping and informal roads passing through the site. The topography of the site is very flat with some sand hills and Dolorite ridges at some spots. The vegetation is a typical of the Namib Desert which is very sparsely distributed.

There are no existing servitudes within the site. However, the site lies between the MR44 road to Henties Bay which is being upgraded to the highway and the railway line to Walvis Bay. There is also a NamWater pipeline across the road. The site is currently covered with windblown litters understandably from the adjacent informal settlements. Furthermore, the site is a walking distance from the existing Swakopmund aerodrome.

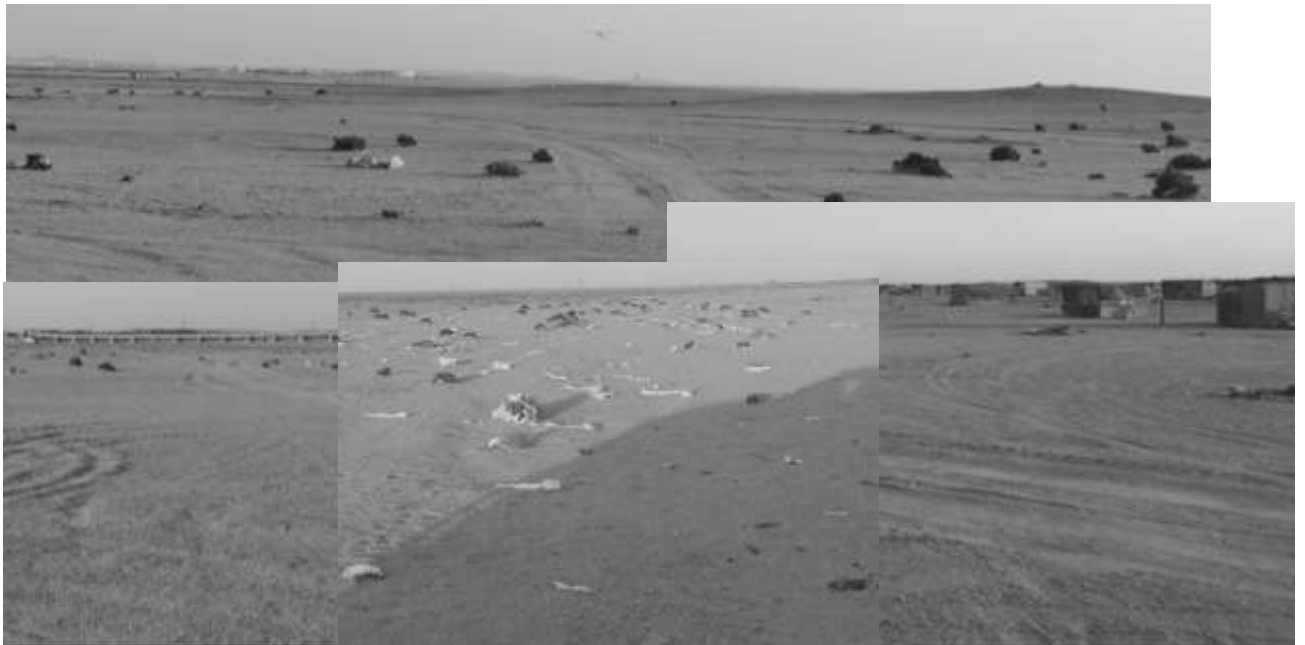


Figure 2: Site overview (161-163)



The larger part of the portion 164 site is occupied by the Swakopmund aerodrome and a sport recreational area (Go-kart) located further east of the site. There are also Municipal pump station and Namwater reservoirs.



Figure 3: Existing Swakopmund Aerodrome on Portion 164

The proposed township development will be on the small portion which is currently vacant. This portion has a generally flat slope with sparsely distributed vegetation consisting mainly of the pencil bush. It is adjacent to the existing heavy industrial area.



Figure 4: Site overview Portion 164

## 2.3 Proposed township layout

### a). Portion 161-163:

The proposed township development will be a mixed use consisting of mainly “single residential” and other land uses such as, *general residential*, *POS*, *general business*.



Figure 5: proposed township layout (Extension 40-42)

Portions	Total Area (m <sup>2</sup> )	Usage	No. of Erven
Portion 161 (Extension 41)	238167.49m <sup>2</sup>	Single residential, general business, institutional, POS	±245 and remainders
Portion 162 (Extension 42)	203512.61m <sup>2</sup>	Single residential, general business, institutional, POS	±255 and remainders
Portion 163 (Extension 43)	376885167.78m <sup>2</sup>	Single residential, general business, institutional, POS	±300 and remainders

**b). Portion 164:**

The proposed township development is for “Light Industrial” with an inclusion of few other land uses such as the *general businesses, local authority, institutional and Public Open Spaces*.

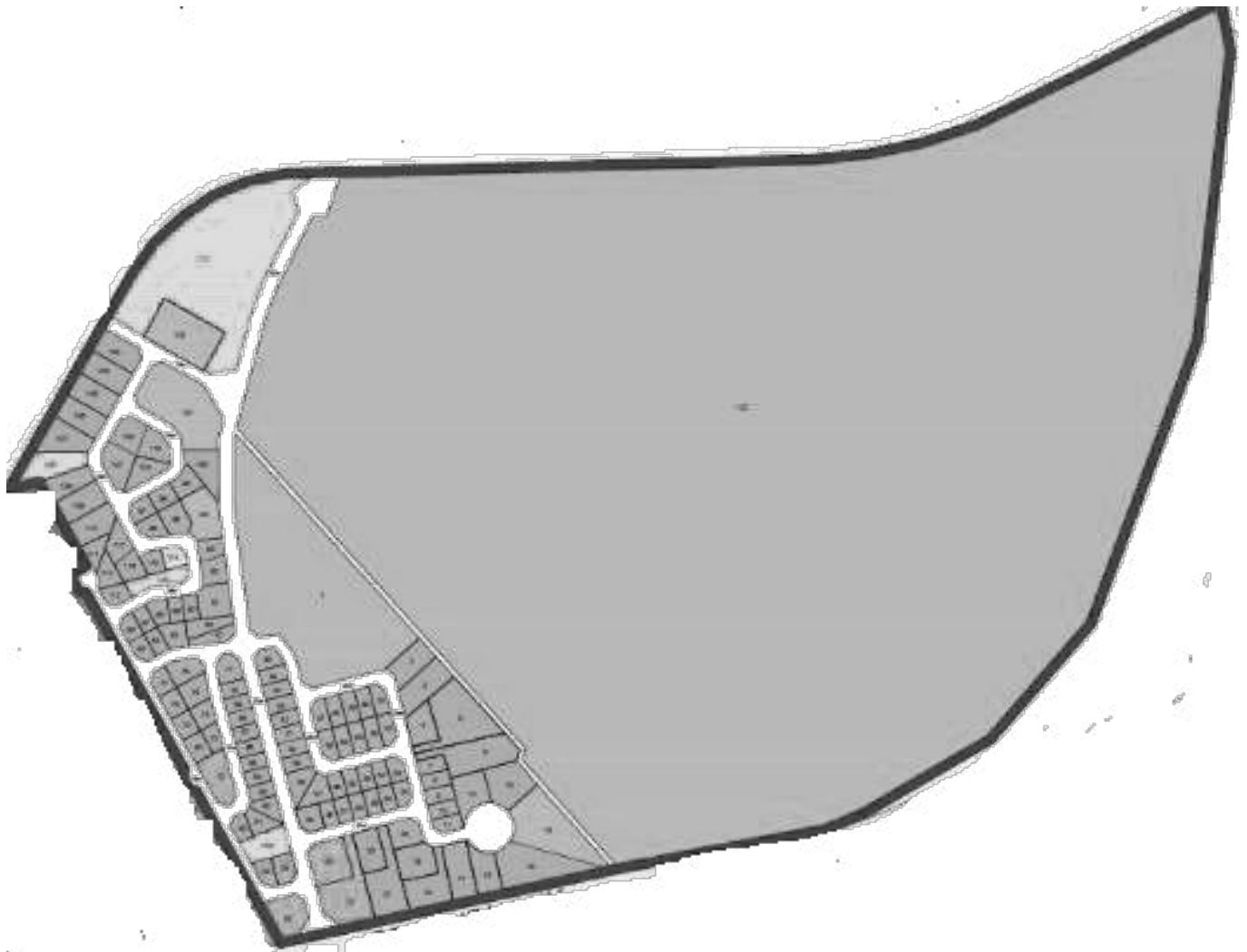


Figure 6: Proposed township layout (Extension 43)

Portions	Total Area (m <sup>2</sup> )	Usage	No. of Erven
Portion 164 (Extension 44)	282,1472m <sup>2</sup>	Light Industrial Local Authority POS General Business Parastatal	126 and remainders

### 3. PURPOSE OF THE EMP

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The purpose of this document is to guide environmental management throughout the lifecycle stages of the proposed development, namely: planning and design, construction and operation & maintenance. Furthermore, it is to ensure that impacts on the environment due to the proposed development are limited. The EMP has the following objectives:

- Assess the suitability of the proposed developments on the proposed development site
- To identify possible impacts of the proposed activity on the environment and mitigation thereof;
- To provide information on construction activities associated with the identified environmental issues;
- To provide guidelines for the management of the identified environmental issues; and
- To provide guidelines to the responsible person to follow appropriate contingency plans in the case of possible impacts.

This plan describes the mitigation and monitoring measures to be implemented during the following phases of these developments:

- **Planning and Design** – the period, prior to the drafting of construction tender documents, during which preliminary legislative and administrative arrangements, necessary before any erven are sold, are made and detailed engineering designs/drawings are carried out;
- **Construction** – the period during which Swakopmund Municipality, having secured the necessary legislative and administrative arrangements, prepare construction tender documents for the development of services infrastructure to service the various erven as well as any other construction process(s) within the development areas. It also includes the period during which the services infrastructure will be constructed to service the various erven within the townships; and
- **Operation and Maintenance** – the period during which the services infrastructure will be fully functional and maintained by the Municipality as deemed necessary.

Due to the nature of this development, it is anticipated that all the infrastructure would be permanent, hence decommissioning and rehabilitation is not envisaged for these developments. The commitment described here form part of the Environmental Clearance Certificate (ECC) between Swakopmund Municipality and the state, as represented by the Ministry of Environment, Forestry and Tourism (MEFT). Non-compliance is considered illegal and may have legal consequences.

## **4. RESPONSIBILITIES**

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Swakopmund Municipality (the Proponent/Developer) is ultimately responsible for the implementation of the EMP. The Proponent may delegate this responsibility at any time, as they deem necessary, from construction and operation & maintenance. The implementation of this EMP requires the involvement of several key individuals, each fulfilling a different but vital role to ensure sound environmental management during each phase of these developments. The following positions and their respective responsibilities are outlined below:

### **4.1 The Developer (Swakopmund Municipality)**

Responsibility: To implement the final EMP document approved by DEA before commencement of the planning phase and to ensure that the proposed development comply with the EMA requirements and the Environmental Authorization.

### **4.2 The Proponent's Representative**

If the Proponent does not manage all aspects of the planning & design, construction and operation & maintenance phase activities, referred to in this EMP, they should assign this responsibility to a suitably qualified individual referred in this plan as the Proponent's Representative (PR). The Proponent may decide to assign the role of a PR to one person for both phases. Alternatively, the Proponent may decide to assign a separate PR for each developmental phase (planning & design, construction and operation & maintenance).

During the Planning & Design and Construction (tender preparation) Phase, the PR will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorisations have been obtained;
- Developing, managing implementation of and maintaining all Development Guidelines;
- To ensure the contractor sign the EMP before commencement of the development.
- Ensure that the management requirements inform the planning and design of the relevant infrastructure developments (i.e. that these requirements are considered during the Planning and Design Phase not as an afterthought); and
- Ensure that the management requirements inform the preparation of tender documents for the construction of the relevant infrastructure developments.

During the Construction and Operation & Maintenance Phases the PR shall assist the ECO where necessary and will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorisations and permits have been obtained by the Contractor;

- Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary;
- Management and monitoring of individuals and/or equipment on site in terms of compliance with the EMP;
- Issuing fines for transgression of site rules and penalties for contravention of the EMP; and
- Providing input into the ECO's ongoing internal review of the EMP. This review report should be submitted on a monthly basis to the Proponent.

### **4.3 Environmental Control Officer**

The Environmental Control Officer (ECO) should be a competent person appointed by the Proponent. The ECO is the Developer's on-site representative primarily responsible for the monitoring and review of on-site environmental management and implementation of the EMP by the Contractor. Failure to appoint an ECO, the duties fall upon the proponent.

#### Responsibility:

- Assisting the PR in ensuring that the necessary legal authorizations have been obtained;
- Management and facilitation of communication between the PR, Proponent, the Contractor, and I&APs with regard to this EMP and matters incidental thereto;
- Conduct monthly site inspection of all construction and/or infrastructure maintenance areas with regard to compliance with this EMP;
- Monitor and verify adherence to the EMP (audit the implementation of the EMP) and verify that environmental impacts are kept to a minimum;
- Taking appropriate action if the specifications of the EMP are not adhered to;
- Assisting the Contractor in finding environmentally responsible solutions to problems;
- Advising on the removal of person(s) and/or equipment not complying with the provisions of the EMP in consultation with the PR;
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to the document.

### **4.4 The Contractor & Sub-contractor (s)**

It is envisaged that various contractors might be appointed at various times for various tasks throughout the life cycle (construction through to operation & maintenance phase) of this project. In order to ensure sound environmental management, the relevant sections of this EMP should be included in all contracts of work outsourced thus legally binding all appointed contractors and sub-contractors.

Responsibility:

- To comply with the Environmental Authorization and undertake construction activities in an environmentally sensitive manner and rehabilitation of the site.
- To undertake good housekeeping practices during the duration of the project.
- To ensure that adequate environmental awareness training takes place in the in the employees' language of choice.

**4.5 The Environmental Assessment Practitioner (EAP)**

The EAP is responsible to conduct the required EA which includes compiling an EMP for the proposed development. The EMP is to be submitted with the scoping EA report as supporting documents to the application for an ECC to the Environmental Commissioner at MEFT: DEA. This EMP will be used by Contractors and Engineers as well as the Proponent in guiding them during the construction and operational of the townships to ensure that the impacts on the environment are limited or avoided all together. Lastly, the EAP should be available to make amendments or additions to this EMP in accordance with the recommendations of the EIA study.

## 5. LEGAL REQUIREMENTS

The contents of the EMP must meet the requirements S8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the proposed activity on the environment throughout the project life cycle. The Swakopmund Municipality is advised to make use of each applicable legislation listed in the table below in addressing different aspects of the planned development.

**Table 1: Applicable and relevant legislations at various phases throughout the project lifecycle**

LEGISLATION	PROVISION	PROJECT IMPLICATIONS
<b>Water resources management act 2004</b>	This act provides provision for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. In addition the Act clearly gives provision that pertain with license or permit that required abstracting and using water as well as for discharge of effluent. The effluent of human waste under this framework is the main focus; hence mobile toilets are earmarked to be used to avoid any seepage into existing water course, infiltration into soil and etc.	To be complied with
<b>Draft Urban and Regional Planning Bill and Regulations</b>	It is envisaged that the current system of land use planning and development controlled in Namibia will be comprehensively reformed by the enactment of the draft Urban and Regional Planning Bill and regulation. The Bill provides for the establishment of national, regional and urban structure plans, and the development of zoning schemes. It also deals with a variety of related land use control issues such as the subdivision and consolidation of land and the establishment and extension or urban areas.	To be complied with
<b>Pollution Control and Waste Management Bill</b>	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. This Bill licenses discharge into watercourses and emissions into the air.	To be complied with
<b>National Heritage Act 27 of 2004</b>	Heritage resources to be conserved in development. (National Heritage of Namibia)	To be complied with
<b>Labour Act (No 11 of 2007)</b>	135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery in connection with the structure of such buildings of otherwise in order to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Employment Creation)	To be complied with
<b>Sewerage and Drainage Regulations (amendments) Local authorities Regulations</b>	Affords the prevention of pollution and environmental damage caused by the improper construction of sewerage and water pipelines in drainage lines.	To be complied with
<b>Noise Control Regulations</b>	It is essential to ensure that before any development project is approved and undertaken, an assessment or evaluation of expected noise level is done.	To be complied with



## **6. MANAGEMENT REQUIREMENTS**

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### **6.1 Method Statement**

A Method statement outlines construction activities to be undertaken with mitigation measures, which should be prepared by all contractors. The contractor must give a written statement to the resident engineer at least two weeks before the activity so that any irregularities can be handled before construction commences and also communicated to the employees. The format of the Method statement should clearly indicate the following:

- Construction and Operational Procedures
- Materials and Equipment used
- How and where materials will be stored
- When actions will be undertaken

Based on the EMP specifications, the following Method statements are required as minimum:

- Site clearing
- Site layout and establishment
- Storage of hazardous substances and accidental spillages of hazardous substances
- Cement mixing
- Waste management procedures
- Wastewater management procedures
- Traffic accommodation
- Erosion remediation
- Fire control and emergency procedures

### **6.2 Environmental Awareness Training**

All contractors should ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers and new employees receive an induction presentation on the importance and implications of the EMP prior to the work commencing. The presentation should be conducted by the ECO, in the employees' language of choice.

### **6.3 Record Keeping**

The Contractor should keep records of all environmental training sessions, including names, dates and the information presented. Records of environmental incidents report, training records, audit reports and public complaints register should be kept at the site office during the period of the project. It is advised that photographs of the site should be taken before,

during and after-construction as visual references. These records should be kept for a minimum of two (2) years after completion of the project.

#### **6.4 Non-compliance and Penalties**

In case of transgressions and non-compliance to the EMP by the contractor, there should be a penalty fine. Transgressions should be recorded in a register, and be kept at the site office for the duration of the project. The resident engineer will issue the penalties in terms of the severity on the environment.

Adherence to this EMP during construction will ensure that the environmental impacts associated with the proposed development will be mitigated to a greater extent thus promoting sustainable development. The commitment and co-operation of the identified responsible person(s) will ensure effective implementation of the EMP pre-construction and post-construction.

## 7. IDENTIFIED IMPACTS AND MITIGATIONS

The following management tasks as detailed in the tables below need to be carried out during the planning & design and before preparation of tender documents for the construction of services infrastructure. These management requirements are also applicable for the period during which detailed engineering designs/drawings are carried out.

**Table 2: Planning, Design and Construction Management actions**

ASPECTS	ISSUES	MANAGEMENT PLAN	RESPONSIBILITY	MONITORING
<b>EMP Implementation</b>	Adherence to the EMP	<ul style="list-style-type: none"> <li>The Municipality needs to appoint a Proponent's Representative (PR) act as the Employer's on-site implementing agent. This person should be responsible to ensure that the Town Council and Contractor's responsibilities are executed in compliance with relevant legislation and the township's EMP.</li> <li>The EMP should also form part of the tender documentation.</li> </ul>	Municipality	Municipality
<b>Construction Schedule</b>	Poor planning might be detrimental	<ul style="list-style-type: none"> <li>A convenient construction schedule should be prepared and distributed with adjacent neighbours and posted on the site notice boards. This will ensure that the community is aware of when to expect the construction team onsite.</li> </ul>	Contractor	Proponent's Representative
<b>Water Supply</b>	Excess to potable water	<ul style="list-style-type: none"> <li>Potable water must be available at the camp depot, site office and construction site.</li> <li>Equipment considered during the design of new infrastructure (e.g. water Meters) must be readily available.</li> </ul>	Contractor	Proponent's Representative
<b>Access Routes</b>	Erosion and dilapidation of the access route	<ul style="list-style-type: none"> <li>Upgrade the access road used during construction to an acceptable condition.</li> <li>Proper maintenance should be done to ensure the quality of the access road.</li> <li>The access onto the trunk road will need to be designed and constructed to the standards and specifications of the Roads Authority, at no cost</li> </ul>	Contractor	Proponent's Representative

		to the Roads Authority, and detail drawings will first need to be submitted to the Roads Authority for approval before construction work begins.		
<b>Power Supply</b>	Safety impacts	<ul style="list-style-type: none"> <li>• Limit the power supply cables &amp; ensure the safety of the workers and neighbouring residents.</li> <li>• All health and safety laws and regulations should be adhered to.</li> </ul>	Contractor	Proponent's Representative
<b>Waste Management</b>	Cleanliness and mismanagement of waste	<ul style="list-style-type: none"> <li>• The site should be kept tidy at all times</li> <li>• No waste may be buried or burned on site or anywhere else.</li> <li>• All domestic and general construction waste produced on a daily basis should be cleaned and contained daily.</li> <li>• Separate waste containers/bins for hazardous and domestic/general waste must be provided onsite. The waste containers should be emptied after construction and removed from site to the waste disposal site.</li> </ul>	Contractor	Proponent's Representative
<b>Reticulation</b>	Overflowing sewage or poorly planned systems might pose risks to the surrounding	<ul style="list-style-type: none"> <li>• A complete fresh water and sewer reticulation for all areas needs to be done and should comply with this Townships EMP</li> <li>• Sufficient potable water reserves should be available to workers at all times.</li> <li>• Sewerage lines to be placed outside the flood risk area (13m buffer zone).</li> <li>• Sewer pipes should avoid crossing any river/basins or major drainage lines. Where this is not possible the design should comply with the International Standards (ISO) 1200m for sewer pipe designs.</li> <li>• The planning of New Wastewater Treatment Facility and sewer system (if any) should undergo an EIA as required by the EIA Regulations and obtain an Environmental Clearance Certificate.</li> </ul>	Contractor	Proponent's Representative

<b>Run-off</b>	Poor planning might be detrimental	<ul style="list-style-type: none"> <li>• A Storm water Management Plan should be developed by the Municipal Council for all areas and should address the following: <ul style="list-style-type: none"> <li>○ Canalising of run-off with concrete should be avoided as far as possible and natural run-off surfaces utilised or enhanced.</li> <li>○ Cumulative storm water issues.</li> <li>○ Storm water channels should be accommodated next to roads in the reserve.</li> </ul> </li> </ul>	Municipality	Proponent Representative
<b>Burrow Pits</b>	Using of unregulated burrow pits is illegal	<ul style="list-style-type: none"> <li>• Ensure that all borrow pits utilised, commercial or private, have an ECCs and EMPs in place and are being implemented.</li> <li>• Avoid sensitive areas (e.g. areas with high biodiversity, protected archaeological sites, rivers or drainage lines).</li> <li>• When excavating, topsoil should be stockpiled in a demarcated area. Stockpiled topsoil should be used to rehabilitate the nearest borrow area (existing borrow pits), if such an area is located less than 20 km from the stockpile.</li> <li>• Upon completion of the construction phase consultations should be held with the local community/adjacent neighbours regarding the post-construction use of exhausted borrow pits.</li> <li>• Borrow pits are to be fenced-off with steel wire fencing.</li> </ul>	Contractor	Proponent's Representative
<b>EMP Training</b>	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> <li>• Employees appointed for construction work on respective infrastructure must ensure that all personnel are aware of the necessary health, safety and environmental considerations applicable to their respective work.</li> <li>• Comprehensive induction forms a critical component during the construction and operational period. This includes the following:</li> </ul>	ECO	Proponent's Representative

		<ul style="list-style-type: none"> <li>○ Ensuring that all employees are aware of their individual impact on the environment.</li> <li>○ Ensuring that preventative measures and procedures are undertaken in order to reduce the risk of a potential impact</li> </ul>		
<b>Health and Safety</b>	Safeguard health and safety of labourers and general public.	<p>The following requirements should form part of the Tender document:</p> <ul style="list-style-type: none"> <li>• The site should be locked to limit unauthorised public access to the site.</li> <li>• The contractor should ensure that all personnel are provided with personal protective (PPE), such as gloves, safety boots, to protect them from hazards being presented and that will allow them to work without risking their health.</li> <li>• Safety signs complying with relevant construction standards should be placed on-site in a manner clearly visible to the public.</li> <li>• Construction Methods should adhere to the Occupational Health and Safety clause of the National Labour Act.</li> <li>• Construction workers should be trained on how to handle materials and equipment on site (if they do not already know how to) in order to avoid injuries.</li> <li>• A safety officer should be appointed prior to commencement of construction.</li> <li>• No workers should be allowed onsite if under the influence of alcohol.</li> <li>• All building materials and equipment are to be stored only within set out and demarcated work areas.</li> <li>• Separate toilets should be available for men and women and should clearly be indicated as such. Portable toilets (i.e. easily transportable) should be available at every construction site:</li> </ul>	Contractor	Proponent's Representative

<b>Monitoring</b>	EMP non-compliance	<ul style="list-style-type: none"> <li>• The ECO/Proponent/Contractor should monitor the implementation of this EMP.</li> <li>• The ECO should inspect the site throughout construction at least on a weekly basis.</li> </ul>	ECO	Proponent's Representative
<b>Residents</b>	Dust and Noise disturbance	<ul style="list-style-type: none"> <li>• A watering truck should be used on gravel roads with the most heavy vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought.</li> <li>• Work hours should be restricted between 08h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week's written notice.</li> </ul>	Contractor	ECO
<b>Pollution</b>	Increase of noise and vehicle traffic	<ul style="list-style-type: none"> <li>• Construction work that could cause noise should be restricted to normal working hours unless special permission is granted by authority and surrounding neighbours.</li> <li>• Consider the use of construction vehicles without reversing beepers. Rather use flagmen and flashing lights in hazardous situations.</li> </ul>	Contractor	ECO

The following mitigation measures should be complied with and carried out during any maintenance works associated with the services infrastructure within the planned development areas.

**Table 3: Operation and Maintenance Management action**

ASPECTS	POSSIBLE IMPACTS	MANAGEMENT PLAN	RESPONSIBILITY	
			IMPLEMENTATION	MONITORING
<b>EMP implementation</b>	Non-compliance during maintenance	<ul style="list-style-type: none"> <li>If any construction is to be conducted as part of maintenance works for the services infrastructure within the area, please refer to the construction mitigation measures in this EMP</li> </ul>	Municipality	Municipality
<b>Power supply</b>	Service delivery and safety impacts	<ul style="list-style-type: none"> <li>The existing electrical network should be extended to the proposed development.</li> <li>Energy efficiency measures should be adopted to reduce consumption of electricity.</li> <li>The electrical work should comply with Occupational Health and Safety procedures of the National Labour Act.</li> <li>A registered electrician acknowledged by the Municipality should undertake all the electrical work.</li> </ul>	Municipality	
<b>Water Supply</b>	Water supply interruptions may negatively affects residents	<ul style="list-style-type: none"> <li>The Municipality must ensure sufficient water supply to residents</li> </ul>	Municipality	
<b>Soil Erosion</b>	Management of erosion	<ul style="list-style-type: none"> <li>Ensure correct drainage within the areas.</li> <li>The layout of the area should be optimized to limit the erosion potential.</li> <li>Erosion control measures should be implemented to stop further erosion and to reduce the safety hazards created by the dangerous slopes.</li> </ul>	Municipality	



<b>Waste management</b>	Littering from new settlements and possibility of illegal dumping	<ul style="list-style-type: none"> <li>• All domestic waste should be removed from the site to the Municipal solid waste dumpsite.</li> <li>• Illegal dumping should be prohibited.</li> <li>• Municipality should educate residents on waste management</li> </ul>	Developers	Municipality
<b>Sewage</b>	Pollution due to overflowing of the existing oxidation ponds due to inability to accommodate the extra effluent from development	<ul style="list-style-type: none"> <li>• The bulk services plan should make proper recommendation on sewage system for the new extensions</li> <li>• Regular monitoring and maintenance of the sewer network should be in place.</li> </ul>	Municipality	Municipality
<b>Aesthetic view of the area</b>		<ul style="list-style-type: none"> <li>• The site must be clear of litter and all waste must be removed and disposed of to the landfill site.</li> <li>• All stockpiles must be removed to spoil or handled as directed by the engineers.</li> <li>• Spoil heaps should be flattened to the similar adjacent ground, to prevent soil erosion, thus encouraging natural vegetation.</li> <li>• All excavations should be backfilled, levelled and compacted.</li> <li>• All surfaces hardened due to construction must be ripped and material imported thereon be removed.</li> <li>• The original site topography should be restored where as much as possible.</li> <li>• All disturbed areas should be vegetated with indigenous grass to ensure progressive plant succession. Topsoil should be applied at cleared area and where material was stockpiled for this purposed.</li> <li>• A final audit must be completed before the contractor may leave the site to ensure that all requirements were adhered to.</li> <li>• The contractor should rehabilitate the site when construction is completed, thus a detailed rehabilitation plan should be drawn up by the contractor.</li> </ul>	Developers	Municipality

## 8. CONCLUSION

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Based on the findings of this EIA study and proposed mitigation measures outlined in this EMP, Green Gain Consultants cc is confident that the proposed townships establishment will not result in appreciable environmental impacts, provided that this EMP is implemented and that all the legal requirements pertaining to this development are complied with.

Upon approval by the authorities, this EMP shall be considered legally binding and any deviation or transgression is punishable by law as per the Environmental Management Act, No. 07 of 2007. A copy of this EMP shall be kept by the proponent or responsible person/department at all time.

It is recommended that an Environmental and Social Management Plan (ESMP) for the existing Swakopmund airport be prepared in order to avoid, lessened or mitigate potential negative impacts associated with the existing and the proposed development. Furthermore, The Municipality in collaboration with the Namibian Civil Aviation Division should develop a Public Safety Zones (PSZs) for the Swakopmund airport, which restrict what new development can be located in these zones.

Although the implementation of this EMP requires a multitude of administration, the project proponent should play a pivotal role in its implementation. The Municipality of Swakopmund should therefore ensure proper coordination with other stakeholders and may provide training to all parties involved when necessary. The proponent should also ensure to avail necessary resources (i.e. human, financial etc.) and synergies the implementation of this EMP.

Lastly, this EMP is valid until the project has been successfully implemented and thus the competent authority is mandated to conduct regular monitoring and inspections at different project phases. The amendment, transfer or renewal of the ECC should be communicated to the Environmental Commissioner as stipulated in the (EMA) of 2007 (S 39-42) and its EIA Regulations (S 19-20). Any changes to this EMP will require an amendment to the ECC for these developments. When approved by DEA, this draft EMP will be considered the final. Should there be any conflict between the EMP and project specifications, then terms herein shall be secondary.