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Environmental Scoping Assessment (ESA) for the Proposed Operation of a Crematorium Facility in Walvis Bay, Erongo Region

ENVIRONMENTAL ASSESSMENT REPORT: DRAFT

ECC Application Reference: APP-002089

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EXECUTIVE SUMMARY

Eden Crematorium and Funeral Services (Pty) Ltd (The Proponent), plans to operate a crematorium facility at Walvis Bay in the Erongo Region. Eden Crematorium and Funeral Services currently operate the facility at 2354 10th Street, Light Industrial Area in Walvis Bay (ECC-APP3573 issued for operations), and plans to relocate the operations to a new site. The proposed project site is located in Erf 3235 (Northern industrial area) (Coordinates: **-22.9448, 14.5127**). The Proponent proposes to operate a crematorium facility on the 1,827 m² erf, with the capacity to cremate ± five (5) bodies a day.

The proposed operation may not be undertaken without an ECC under the Environmental Impact Assessment (EIA) Regulations. In order to ensure that the proposed activity is compliant with the national environmental legislation, the project Proponent, appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

The application for the ECC is compiled and submitted to the competent Authority (Ministry of Environment, Forestry and Tourism (MEFT)) as the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project will be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

Project Description

The proposed methods for the proposed development are divided into the following categories:

Pre-development (Site Preparation) Phase: This phase includes the Proponent ensuring that the site for the proposed project is legitimately acquired from the relevant authority (municipality or lessor), and the site has been cleared by relevant authorities, to prepare the site and existing facility for the proposed activities in order to enable the commencement of the operational phase. This is also the phase where the Proponent ensures that the necessary utilities for the proposed development are sourced and are available on site.



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Operational Phase: This phase involves the operational activities of the proposed development. Any required new construction or upgrading of the existing facility is to be carried out by qualified and experienced contractors as according to the design of the proposed development. The proposed facility has the capacity to cremate about five (5) bodies a day. The facility comprises a mortuary with shelves, offices, store, ablution facilities, a reception area, kitchen, waiting area, and parking space

Public Consultation

Public Consultation Activities

- A Background Information Document (BID) containing brief information about the proposed facility was compiled and emailed to relevant authorities, and upon request to all new registered Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices were published in The Namibian newspaper and New Era Newspaper (20 September, 2023 and 27 September, 2023), briefly explaining the activity and its locality, and inviting members of the public to register as I&APs and submit their comments/concerns;
- Site notices were placed at the site to inform members of the public of the EIA process and register as I&APs, as well as submit comments.

Potential Impacts identified

The following potential positive and negative impacts are anticipated to occur during the operational phase of the proposed development:

Positive impacts:

- Creation of jobs for the locals
- Production of a trained workforce and small businesses that can serve local communities
- Boosting of local and regional economic development.

Negative impacts:

- Air Quality Reduction



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- Health and Safety issues (due to exposure)
- Potential occupational health and safety risks associated with handling of operational equipment.
- Environmental (water and land) pollution.
- Fire Risk

RECOMMENDATIONS AND CONCLUSIONS

The potential (positive and negative) impacts anticipated from the proposed operation of the crematorium facility are identified, described, and assessed. Most of the identified potential negative impacts are rated as of Medium/Low Significance. Therefore, in order to reduce the significance and maintain low significance, it is recommended that the Proponent effectively establishes and continuously implement and monitors mitigation measures as provided in the Environmental Management Plan.

It is, therefore recommended that in the event of an ECC issuance, the ECC may be issued, on conditions that the management and mitigation measures specified in the Environmental Management Plan (EMP) are implemented and adhered to. These recommendations are primarily aimed at improving environmental management, ensuring sustainability and promoting harmonious co-existence of the project activities and the host biophysical and social environment.



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Appendix C: Curricula Vitae (CV) for the Environmental Assessment Practitioner (EAP)

Appendix D: Public Consultation

Appendix E: Site Plan



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LIST OF ABBREVIATIONS

Abbreviation	Meaning
BID	Background Information Document
CV	Curriculum Vitae
DEAF	Department of Environmental Affairs & Forestry
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
ESA	Environmental Scoping Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
PPE	Personal Protective Equipment
Reg	Regulation
S	Section
TOR	Terms of Reference



DEFINITION OF TERMS

Alternative	A possible course of action, in place of another that would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	That part of the environment that does not originate with human activities (e.g. biological, physical and chemical processes).
Cumulative Impacts/Effects Assessment	In relation to an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.
Ecological Processes	Processes play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution).
Environment	As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.



Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled and monitored.
Interested and Affected Party (I&AP)	In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
Fauna	All of the animals found in a given area.
Flora	All of the plants found in a given area.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Nomadic Pastoralism	Nomadic pastoralists live in societies in which the husbandry of grazing animals is viewed as an ideal way of making a living and the regular movement of all or part of the society is considered a normal and natural part of life. Pastoral nomadism is commonly found where climatic conditions produce seasonal pastures but cannot support sustained agriculture.



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Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.
Terms of Reference (ToR)	Written requirements governing full EIA input and implementation, consultations to be held, data to be produced and form/contents of the EIA report. Often produced as an output from scoping.

1 INTRODUCTION

1.1 Project Background

Eden Crematorium and Funeral Services (Pty) Ltd (The Proponent), plans to operate a crematorium facility in Walvis Bay in the Erongo Region. The proposed facility is located at erf 3235, in the Northern Industrial area of Walvis Bay (Coordinates: **-22.945051, 14.512671**). The proposed development is planned to cover a 1.827 ha erf (**Figure 1**).

As a waste producing facility, a crematorium and related infrastructure are among listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. Thus, the proposed operation of a crematorium facility requires an Environmental Clearance Certificate (ECC) to be issued by the Ministry of Environment, Forestry and Tourism (MEFT) before commencement of operations.



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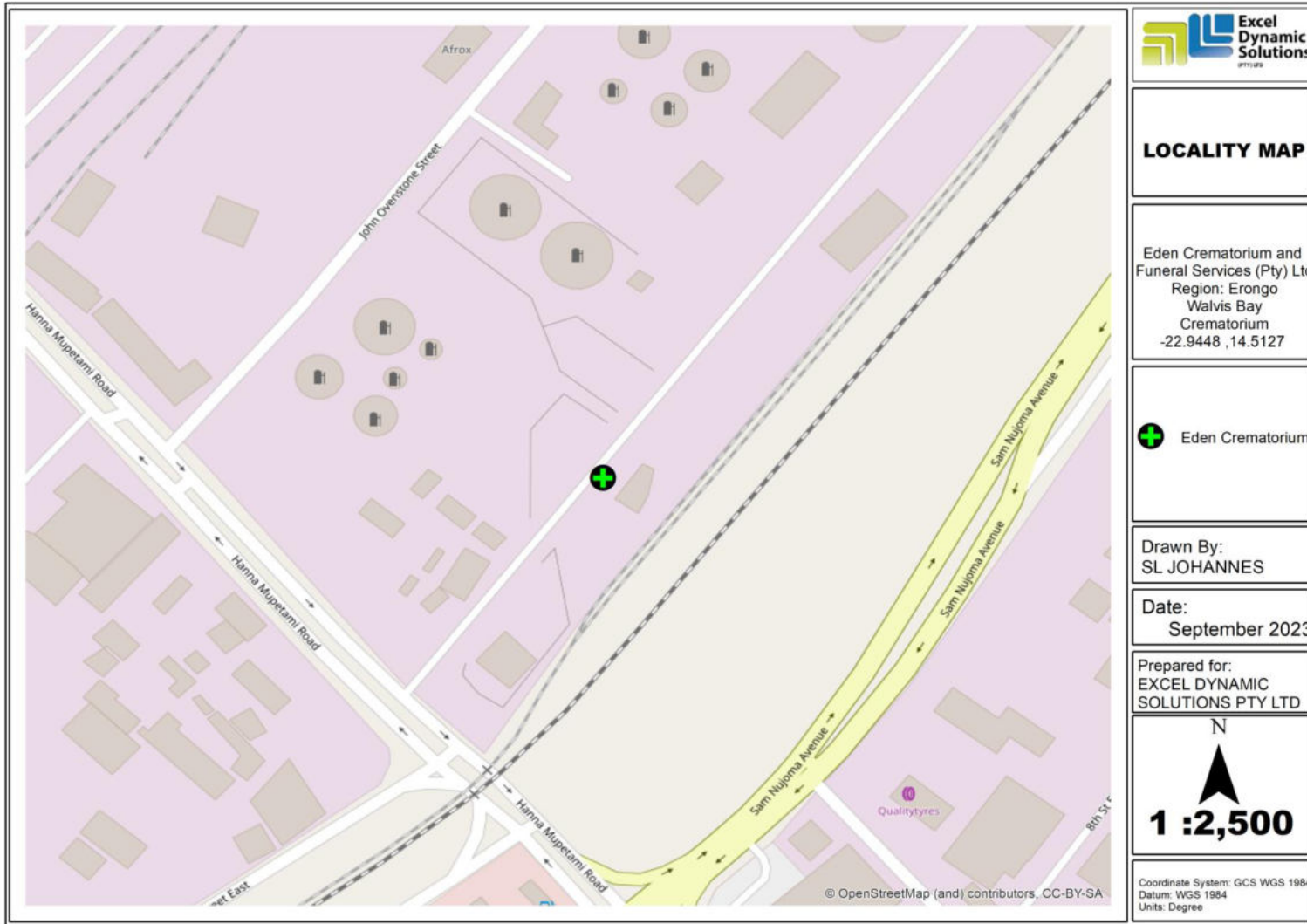


Figure 1: Eden Crematorium Locality Map

1.2 Terms of Reference, Scope of Works and Appointed Environmental Assessment Practitioner

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS) to conduct the required Environmental Assessment process on their (Proponent's) behalf, and thereafter, apply for an ECC for the proposed development. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the EMA and its Environmental Impact Assessment (EIA) Regulations (GN. No. 30 of 2012) to conduct the study.

The application for the ECC is compiled and submitted to the Ministry of Environment, Forestry and Tourism (MEFT)). The date stamped copy of the ECC Application Form 1 (**Appendix A**) is uploaded on the online ECC Portal of the MEFT for project registration purposes. Upon submission of an Environmental Scoping Report (ESR) and Draft Environmental Management Plan (EMP) (**Appendix B**), an ECC for the proposed development will be considered by the Environmental Commissioner at the MEFT Department of Environmental Affairs and Forestry (DEAF).

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. Mr. Nerson Tjelos' CV is presented in **Appendix C**.

1.3 The Need for the Proposed Project

The Proponent has identified the need for a crematorium facility in the Walvis Bay area, which is aimed at increasing local capacity of cremation services, as well as serve as an alternative to other existing crematorium facilities within the country. The operation of the facility would serve the public, particularly the Walvis Bay and Swakopmund communities with easily accessible continuous, high quality cremation services. Cremation services may also serve as generally a cheaper option than burial, and is important to have it available to serve as an option for bereaved persons and communities, and for persons whose personal choice is to have cremation as their method to be put away after death.



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2 PROJECT DESCRIPTION

The proposed methods for the project are described below.

2.1 Pre-development (Site Preparation) Phase

This phase includes the Proponent ensuring that the site for the proposed project is legitimately acquired from the relevant authority (municipality or lessor), and the site has been cleared by relevant authorities, to prepare the site and existing facility for the proposed activities in order to enable the commencement of the operational phase. This is also the phase where the Proponent ensures that the necessary utilities for the proposed development are sourced and are available on site.

2.2 Operational Phase

This phase involves the operational activities of the proposed development. Any required new construction or upgrading of the existing facility is to be carried out by qualified and experienced contractors as according to the design of the proposed development. The proposed facility has the capacity to cremate about five (5) bodies a day. The facility comprises a mortuary with shelves, offices, store, ablution facilities, a reception area, kitchen, waiting area, and parking space.

Other aspects involved during the operation phase include:

Waste Management

Solid waste: The site will be equipped with secured waste bins for each type of waste (i.e., domestic (general + recyclable), and hazardous. Depending on the amount generated, waste will be collected as regularly as necessary, according to municipal procedures and schedules. An agreement will need to be reached with waste management facilities for waste collection, in the cases of any hazardous solid waste produced on site.

Sewerage: It is anticipated that due to the locality of the site, the site sewer is connected to the municipal sewer system.

Health and safety: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to all project personnel while working at site. A minimum of two standard first aid kits will



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be readily available on site to attend to potential minor injuries. Any major injuries on site need to be handled by a healthcare facility.

Fire management: Firefighting equipment needs to be readily available at appropriate sites on the property, and due to the nature of the proposed activity, there must be at least one member of staff trained to use the equipment on site at all working times.

2.3 Closure Phase

The Proponent may decide to cease operation of the facility for various reasons, but in the case of decommissioning of operations, the proponent might be required to dismantle and remove the any material erected or equipment used for the cremation services on site. It is advisable for agreements between the Proponent and relevant authorities or lessor, to include plans and conditions for cessation of operations on site. The site must be left as clean, tidy as possible, with no traces of toxins or hazardous substances related to operations of the crematorium.

3 PROJECT ALTERNATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and to identify the alternative that will be the most practical, but least damaging to the environment is identified.

Once the alternatives have been established, these are examined by asking the following three questions:

- *What alternatives are technically and economically feasible?*
- *What are the environmental effects associated with the feasible alternatives?*
- *What is the rationale for selecting the preferred alternative?*

The alternatives considered for the proposed development are discussed in the following subsections.

3.1 Alternatives

3.1.1 The "No-go" Alternative

The “No-go” alternative is the option of not proceeding with the activity, which typically implies a continuation of the status quo. This means the proposed site remains unchanged.

In considering the proposed activity and its benefits to the local communities, the no-go option is not a preferred option this project, although, in the case where parts of the project site are considered environmentally sensitive and/or are a health and safety risk, one or several sections of the site may be identified as no-go zones.

3.1.2 Project Location

The operations are currently located in a Light Industrial area, with neighbours located in close proximity to the facility, and the proposed site in the Northern Industrial area is located in a relatively isolated space, with more distance to the neighbouring erven. The proposed location is a better alternative for the proposed operation due to availability of more space on the facility for the operations to occur.



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4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

4.1 The Environmental Management Act (No. 7 of 2007)

This EIA was carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30).

The EMA has stipulated requirements to complete the required documentation to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities. These activities are listed under the following Regulations:

- 2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- 2.2 Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976.*
- 2.3 The import, processing, use and recycling, temporary storage, transit or export of waste.*

The Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).

Other legal obligations that are relevant to the proposed activities are presented in Error! Reference source not found..



Table 1: Applicable Local - National policies and legislation

Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
The Constitution of the Republic of Namibia, 1990 as amended	<p>The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include:</p> <p>“...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia...”</p>	<p>By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.</p> <p>Ecological sustainability will be main priority for the proposed development.</p>
Environmental Management Act (EMA) No. 7 of 2007	<p>The Act requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27).</p> <p>The Act details principles which are to guide all EAs.</p>	<p>The EMA and its regulations should inform and guide this EA process.</p> <p>Should the ECC be issued to the Proponent, it may be required by the MEFT to be renewed every 3 years, counting from the date of issue.</p>
Environmental Impact Assessment (EIA) Regulations Government Notice 28-30 (Government Gazette 4878))	<p>Details requirements for public consultation within a given environmental assessment process (Government Notice 30 Section 21).</p> <p>Details the requirements for what should be included in a Scoping Report (Government Notice 30 Section 8)</p>	<p>\</p>



Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
	and an Assessment Report (Government Notice 30 Section 15).	
Public and Environmental Health Act (Act 1 of 2015)	Provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	Section 77 (cx) elaborates on the need for keeping of clean environment and free from health nuisance so as not to endanger the public health;
Public and Environmental Health Act (Act 1 of 2015) Regulations	These regulations originally replaced the Public Health Covid-19 General Regulations	Section 19 requires for cremation processes to be carried out in a manner that ensures the safety of the public, staff members and funeral attendees
Crematorium Ordinance 6 of 1971	Operations of Crematoria should adhere to the regulations as set out it in Section 10 of the Ordinance	Operations of Crematoria should adhere to the regulations as set out it in Section 10 of the Ordinance
Atmospheric Pollution Prevention Ordinance 11 of 1976	In terms of Section 5 any person carrying on a “scheduled process” within a “controlled area” has to obtain a registration certificate from the administering authority.	The Act lists 72 processes in Schedule 2 which must be registered and a registration certificate (air pollution permit) obtained.
Pollution Control and Waste Management Bill of 1999	Prevent and regulate discharge of pollutants in the air, water and land; regulate noise, dust and odour pollution; establish a system of waste planning and management	All construction, disturbance, effluent and pollution resulting from the crematorium activities will be required to be in strict accordance with the regulations outlined in the Pollution Control and Waste Management Bill.



Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
<p>Hazardous Substances Ordinance 14 of 1974</p>	<p>To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.</p>	<p>All operation, waste and effluent disposal and pollution resulting from the crematorium activities that may be of hazardous nature to the environment, people and general public health will be required to be in strict accordance with the regulations outlined in the Hazardous Substances Ordinance.</p>
<p>Labour Act (No. 6 of 1992)</p>	<p>Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.</p>	<p>The Proponent should ensure that the development do not compromise the safety and welfare of workers.</p>
<p>Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).</p>	<p>Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations</p>	<p>Health and safety regulations must be adhered to throughout the operation.</p>



Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters	The Walvis Bay Municipality is the responsible Local Authority of the area, and therefore, should be consulted in local public consultation matters regarding this project, and relevant municipal policies relevant to the operation must apply and be adhered to.
Water Resources Management Act 11 of 2013	<ul style="list-style-type: none"> • Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii))). • Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). 	The protection (both quality and quantity) of water resources should be a priority.



Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
Soil Conservation Act (Act 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister	Duty of care must be applied to soil conservation and management measures must be complied with.
(a) The Road Traffic and Transport Act No. 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public road and the regulations pertaining to road transport, including the licensing of vehicles and drivers.	Traffic regulations must be adhered to
(b) United Nations Environment programme: Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices	These guidelines are relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants.	Annex 3 Part III Source Category (g) focuses on Crematoria as the source of organic pollutants

4.2 International Policies, Principles, Standards, Treaties and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are as listed in Error! Reference source not found. below.

Table 2: International policies, principles and standards applicable to the project

Statute	Provisions	Project Implications
Equator Principles	<p>A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply with to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors.</p> <p>Principle 1: Review and Categorization</p> <p>Principle 2: Environmental and Social Assessment</p> <p>Principle 3: Applicable Environmental and Social Standards</p> <p>Principle 4: Environmental and Social Management System and Equator Principles Action Plan</p>	<p>These principles are an attempt to: ‘...encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.’</p>



Statute	Provisions	Project Implications
	<p>Principle 5: Stakeholder Engagement</p> <p>Principle 6: Grievance Mechanism</p> <p>Principle 7: Independent Review</p> <p>Principle 8: Covenants</p> <p>Principle 9: Independent Monitoring and Reporting</p> <p>Principle 10: Reporting and Transparency</p>	
<p>The International Finance Corporation (IFC) Performance Standards</p>	<p>The International Finance Corporation’s (IFC) Sustainability Framework articulates the Corporation’s strategic commitment to sustainable development and is an integral part of IFC’s approach to risk management. The Sustainability Framework comprises IFC’s Policy and Performance Standards on Environmental and Social Sustainability, and IFC’s Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC’s commitments, roles, and responsibilities related to environmental and social sustainability.</p> <p>As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below.</p>	<p>The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the Client (Borrower) in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial</p>



Statute	Provisions	Project Implications
	<p>Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts</p> <p>Performance Standard 2: Labour and Working Conditions</p> <p>Performance Standard 3: Resource Efficient and Pollution Prevention and Management</p> <p>Performance Standard 4: Community Health and Safety</p> <p>Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement</p> <p>Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p> <p>Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p> <p>Performance Standard 8: Cultural Heritage</p> <p>Performance Standard 9: Financial Intermediaries (FIs)</p> <p>Performance Standard 10: Stakeholder Engagement and Information</p>	<p>intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.</p>



Statute	Provisions	Project Implications
	A full description of the IFC Standards can be obtained from http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1	
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: “a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

5 ENVIRONMENTAL BASELINE

The baseline information presented below is sourced from a variety of sources including reports of studies conducted in the Erongo Region and Walvis Bay area. Further information was obtained by the Consultant during the public consultation meeting and site assessment.

5.1 Climate

Walvis Bay lies within the coastal zone, a unique biophysical environment caused by specific climatic conditions that are influenced by the South Atlantic anticyclone and the northward-flowing Benguela Current. Climatic conditions vary from cool, foggy, windy and hyper-arid conditions (Mendelsohn, 2002; Shihepo, 2019). The Walvis Bay area is climatically zoned as temperate desert, with annual mean temperatures of 18°C. Winds occur at any time of day, with predominant W – SSW, NW – NNE and NE – E winds, occurring with some seasonal variations in wind speed and direction (Mendelsohn et al., 2002)

5.2 Fauna and Flora

The site is located within the urban fabric of Walvis Bay. No threatened, endemic or rare fauna and flora species occur at the proposed area.

5.3 Landscape, Soils & Geology

The proposed project is within the Kalahari and Namib sand geology, which comprises a natural flat landscape with Petric Calcisols soil formations, old crystalline rocks forming the basement to the Permo-Triassic Karoo Sequence, and the young deposits of the Namib Desert. The crystalline basement consists of rocks of Abbabis Metamorphic Complex and Swakop Groups of the Damara Sequence (Schreiber, 1996).



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5.4 Water Resources

Surface and Ground Water: In terms of hydrology, area of Walvis Bay and surroundings is overrun by the ephemeral Kuiseb River that is dry for most of the year and sometimes even many years. The direction of groundwater in the vicinity of the project is inferred to flow westwards (toward the Atlantic Ocean). Run-off is generated predominantly in the upper part of the catchment. (GCS Water & Environmental Consultants, 2018 after SLR Namibia, 2014a).

5.5 Socio-Economic conditions

Population of Erongo Region and Walvis Bay

The population of Erongo Region recorded in the National Population and Housing Census (PHC) in 2011 was 150 809. This figure shows that the regional population had increased by 28.6% from 107 663 PHC recorded in 2001(Namibia Statistics Agency (NSA), 2011). For Walvis Bay rural and urban, the population recorded in 2011 were 26 916 and 35 828, respectively. The proposed site falls under the Walvis Bay Urban Constituency.

6 PUBLIC CONSULTATION PROCESS

Public consultation is an important component of the Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process, thus assisting the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this scoping study has been done in accordance with the EMA and its EIA Regulations.

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities, local leaders, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed development were placed in two widely-read national newspapers in the region (The Namibian Newspaper and New Era Newspaper). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 4** below and the complete list of I&APs is provided in **Appendix D**.

Table 3: Summary of Interested and Affected Parties

National (Ministries and State-Owned Enterprises)
Ministry of Environment, Forestry and Tourism
Regional, Local and Traditional Authorities
Erongo Regional Council
Walvis Bay Municipality
General Public



Interested members of the public

6.2 Communication with I&APs

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs with regards to the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed facility was compiled and emailed to relevant authorities, and upon request to all new registered Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices were published in The Namibian newspaper and New Era Newspaper (20 September, 2023 and 27 September, 2023), briefly explaining the activity and its locality, and inviting members of the public to register as I&APs and submit their comments/concerns;
- Site notices were placed at the site to inform members of the public of the EIA process and register as I&APs, as well as submit comments.

Public Consultation is provided in **Appendix D**.



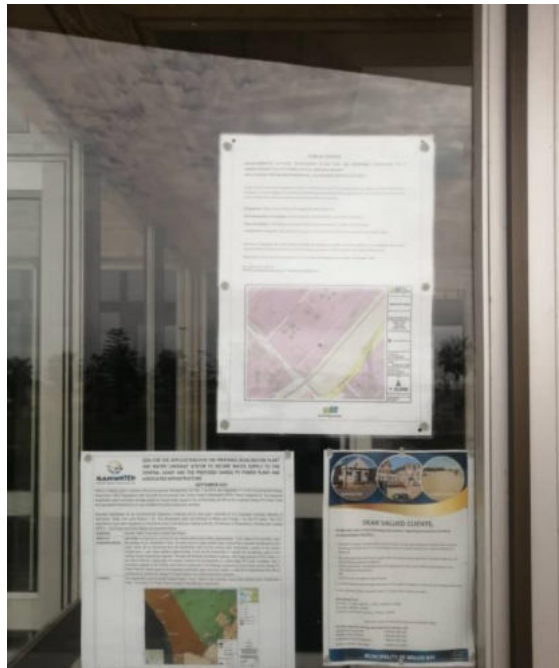
Public Notice at the site



Figure 2: Public Notices at sites



Public Notice at Woermann Stores, Naraville



Public Notice at Walvis Bay Municipality



7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

The proposed development activities are associated with different potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control, while maximizing the positive impacts of the development. The potential positive and negative impacts that have been identified from the proposed development activities are listed as follow:

Positive impacts:

- Creation of jobs for the locals
- Production of a trained workforce and small businesses that can serve local communities
- Boosting of local and regional economic development.

Negative impacts:

- Air Quality Reduction
- Health and Safety issues (due to exposure)
- Potential occupational health and safety risks associated with handling of operational equipment.
- Environmental (water and land) pollution.
- Fire Risk

7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified, and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is in accordance with



Namibia’s Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity) and probability (likelihood of occurring), as presented in **Table 4**, **Table 5**, **Table 6** and **Table 7**, respectively.

In order to enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact;
- Assessment of the pre-mitigation significance of the impact; and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute toward the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were applied in this impact assessment:

7.2.1 Extent (spatial scale)

Extent is an indication of the physical and spatial scale of the impact. **Table 4** shows rating of impact in terms of extent of spatial scale.

Table 4: Extent Impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Impact is localized within the site boundary: Site only	Impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond site boundary: Regional	Impact extend National or over international boundaries

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project. **Table 5** shows the rating of impact in terms of duration.

Table 5: Duration Impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	Impact is quickly reversible, short term impacts (0-5 years)	Reversible over time; medium term (5-15 years)	Impact is long-term	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

7.2.3 Intensity, Magnitude / severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These ratings were also taken into consideration during the assessment of severity. **Table 6** shows the rating of impact in terms of intensity, magnitude or severity.

Table 6: Intensity/Magnitude/Severity Impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts actually occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 7** shows impact rating in terms of probability of occurrence.

Table 7: Probability of occurrence Impact rating

Low (1)	Medium/Low (2)	Medium (3)	Medium/High (4)	High (5)
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.2.5 Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact “without mitigation” is the main determinant of the nature and degree of mitigation required. As stated in the introduction to this section, for this assessment, the significance of the impact without prescribed mitigation actions is measured.

Once the above factors have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SIGNIFICANCE POINTS (SP)} = (\text{MAGNITUDE} + \text{DURATION} + \text{SCALE}) \times \text{PROBABILITY}$$

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate or low significance, based on the following significance rating scale (**Table 8**).



Table 8: Significance rating scale

Significance	Environmental Significance Points	Colour Code
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	1 to 30	L
Neutral	0	N
Low (negative)	-1 to -30	L
Medium (negative)	-30 to -60	M
High (negative)	<-60	H

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse+ Impact

Neutral – Impacts are neither beneficial nor adverse

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a period of time to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the development phases is done for pre-mitigation and post-mitigation.

The risk/impact assessment is driven by three factors:

Source: *The cause or source of the contamination.*

Pathway: *The route taken by the source to reach a given receptor*

Receptor: *A person, animal, plant, eco-system, property or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.*



A pollutant linkage occurs when a source, pathway and receptor exist together. Mitigation measures aim firstly, avoid risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

The potential negative impacts stemming from the proposed project are described, assessed and mitigation measures provided thereof. Further mitigation measures in a form of management action plans are provided in the Draft Environmental Management Plan.

7.3 Assessment of Potential Negative Impacts

The main potential negative impacts associated with the operation and maintenance phase are identified and assessed below:

7.3.1 Reduction of Air Quality

The proposed project is located in an industrial area, and the proposed activity involves reducing dead human bodies to ashes by heating and burning. Corpse cremation processes produce air pollutants such as particulate matter, sulfur dioxide (SO₂), and nitrogen oxides (NO_x). These would potentially affect the quality of air in the area by reducing it through release of fumes from the operations into the air. The scale of the project is, however, limited, as the capacity of operations is at about 5 bodies per day. The impacts can, therefore, be considered to be of a Medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance. The impact is assessed in **Table 9** below.

Table 9: Assessment of impacts on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M: -6	M/H: 4	M: -48
Post mitigation	L/M: -2	L/M: -2	M/L: -4	M: 3	L: -24

7.3.2 Impacts on Health and Safety (Exposure)

The process of cremation may involve thermal exposure, noise exposure and silica exposure for the workers on site. Cremation uses high-temperature burning, vaporization, and oxidation to



reduce human bodies to basic chemical compounds. The design, type, and age of the cremation furnace can create thermal exposures upon contact with or removal of cremation remains. Any pulverization processes that might produce noise, depending on the type of cremulator utilized for the operations. It is important for the Proponent to consider noise levels when choosing machinery any noise producing equipment for operations.

Cremation also presents a concern for worker exposure to fine ash and particulate matter when refractory material is scraped during collection of ashes are collected from the cremation chamber or during maintenance activities. The risk of exposure depends on the type of refractory material, ash collection methods, and maintenance practices. It is especially dangerous when using refractory material that contains silica. When silica dust becomes airborne, there is the potential for worker exposure, which may cause diseases such as Silicosis. It is highly advisable for operations to prevent silica dust from becoming airborne (Oregon OSHA, 2014).

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 10** below.

Table 10: Assessment of impacts of operations on health and safety (exposure)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L: -1	M/H: -4	M/H: -8	M/H: 4	M: -52
Post mitigation	L: -1	L/M: -2	M/L: -4	L/M: 2	L: -14

7.3.3 Potential occupational health and safety risks associated with handling of operational equipment.

Crematorium operations include handling of human remains and maintenance of operational equipment. Safety risks involved in the operations may include injuries during handling of bodies such as lifting and other manual tasks to maintain the facility and equipment.

The significance of this impact is considered to be low, and can be reduced to a lower significance rating by properly implementing mitigation measures. The impact is assessed in **Table 11** below.



Table 11: Assessment of impacts of Occupational health and safety risks (handling of equipment)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L: -1	M: -3	M: -6	M/L: 2	L: -20
Post mitigation	L - 1	L - 1	M/L- 4	L - 1	L - 6

7.3.4 Environmental (water and land) pollution from improper disposal of waste

The proposed project activities are associated with potential water and land pollution sources such as solid waste and wastewater. The main product of the operations (ashes), which may to some extent be considered as waste, is handled with utmost care, in order to be handed over to bereaved persons.

Waste water from cleaning and maintenance of the facility and equipment, as well as domestic/general waste is expected to be minimal, due to the generally limited scale of operations. The impact of operations on the environment, in terms of water and land pollution, is therefore, considered to be moderately low as presented in the **Table 12** below.

Table 12: Assessment of the impact of environmental pollution

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L - 1	L/M - 2	M/L - 4	M/L - 2	L - 14
Post mitigation	L - 1	L - 1	L - 2	L - 1	L - 4

7.3.5 Fire Risk

The proposed operations require high levels of heat in order for cremation to occur. High temperatures in a confined space are a fire risk. Amongst many other causes, fires risk in a crematorium establishment may be due to uncontrolled excess heat, explosion, electric power interruptions, inadequate storage or spill of hazardous or flammable products on site. Fire safety measures must be prioritized in the set-up of the facility, and in daily operations.

The impacts significance is considered as Medium, and upon implementation, the significance is reduced to Low. The impact is assessed in Error! Reference source not found. below.



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Table 13: Assessment of fire risk

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	L/M - 2	M/H - 8	M/H - 4	M - 52
Post mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

8 RECOMMENDATIONS AND CONCLUSION

The potential (positive and negative) impacts anticipated from the proposed operation of the crematorium facility are identified, described, and assessed. Most of the identified potential negative impacts are rated as of Medium/Low Significance. Therefore, in order to reduce the significance and maintain low significance, it is recommended that the Proponent effectively establishes and continuously implement and monitors mitigation measures as provided in the Environmental Management Plan (Appendix B).

It is, therefore recommended that in the event of an ECC issuance, the following conditions may be appropriate to ensure minimal environmental impact for this project:

- All required permits, licenses and approvals for the proposed activities should be obtained as required.
- The Proponent complies with the legal requirements governing this type of project and its associated activities.
- All mitigations provided in this Assessment and the management action plans in the EMP should be implemented and monitoring conducted as recommended.
- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- Monitoring of the implementation of mitigation measures should be conducted, appropriate actions taken, and reporting done and recorded.
- Environmental (EMP) Compliance Monitoring must be conducted during the operation phase, frequently by the project Safety, Health and Environmental Officer, and bi-annually by an independent Environmental Consultant. Environmental Compliance monitoring reports should be compiled and submitted to the DEAF as per provision made on the MEFT/DEAF's Portal.

These recommendations are primarily aimed at improving environmental management, ensuring sustainability and promoting harmonious co-existence of the project activities and the host biophysical and social environment.

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