



Draft Environmental Management Plan

For

**The Proposed Establishment and Operation of the Landfill
Located Southeast of Grootfontein, Otjozondjupa Region,
Namibia**

ECC Application number: 003088

Author: Ms.Aili lipinge

Reviewer: Mr. Silas David

Company: Excel Dynamic Solutions (Pty)Ltd

Telephone: +264 (0) 61 259 530

Email: public@edsnamibia.com

Prepared for: Grootfontein Municipality

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Table of Contents

LIST OF FIGURES AND TABLES	2
1 INTRODUCTION	3
1.1 Project Background.....	3
1.2 Aim of the Draft Environmental Management (EMP)	4
1.3 Appointed Environmental Assessment Practitioner	6
1.4 Environmental Assessment Legal Requirements	6
1.5 Draft EMP Limitations	11
2 EMP ROLES AND RESPONSIBILITIES.....	11
2.1 Competent Monitoring Authority: Department of Environmental Affairs and Forestry (DEAF, MEFT)).....	11
2.2 The Proponent or Proponent’s Representative (PR)	11
2.3 Site Manager (as appropriate)	12
2.4 Environmental Control Officer (ECO).....	12
Archaeology: Chance Finds Procedure (CFP) Implementation Roles	12
3 ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES	14
3.1 Management of Key Potential Adverse Environmental Impacts	14
3.2 Aim of the Environmental Management Plan Actions	14
3.3 Planning and establishment Phase Management Action Plans (Mitigation Plan).....	16
4 ENVIRONMENTAL MONITORING AND REPORTING	26
5 CONCLUSION AND RECOMMENDATION.....	27
APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020).....	28
Responsibility:.....	28
Procedure:	28

LIST OF FIGURES AND TABLES

Figure 1: Locality map of the proposed landfill	3
Table 1: Applicable legal requirements and permits to the activities of the Landfill	6
Table 2: Management and mitigation action plans for the planning and establishment phases....	13
Table 3: Management action plans for Monitoring.....	35

1 INTRODUCTION

1.1 Project Background

Waste management is one of the important aspects of environmental management in Namibia. Waste on its own is a threat to the integrity of the environment, as it can have negative environmental impacts that result from environmental threats such as air pollution, illegal dumping of waste, littering, poor sanitation, and emission of greenhouse gases, urbanization, and poverty. The Grootfontein Municipality (The Proponent) has appointed Excel Dynamic Solution Pty Ltd (Environmental Consultant) to apply on their behalf, for an Environmental Clearance Certificate (ECC) for the proposed establishment and operation of the landfill site in Grootfontein in the Otjozondjupa Region. The proposed site is located about 10 km southeast of the town (**Figure 1**) within its townland.

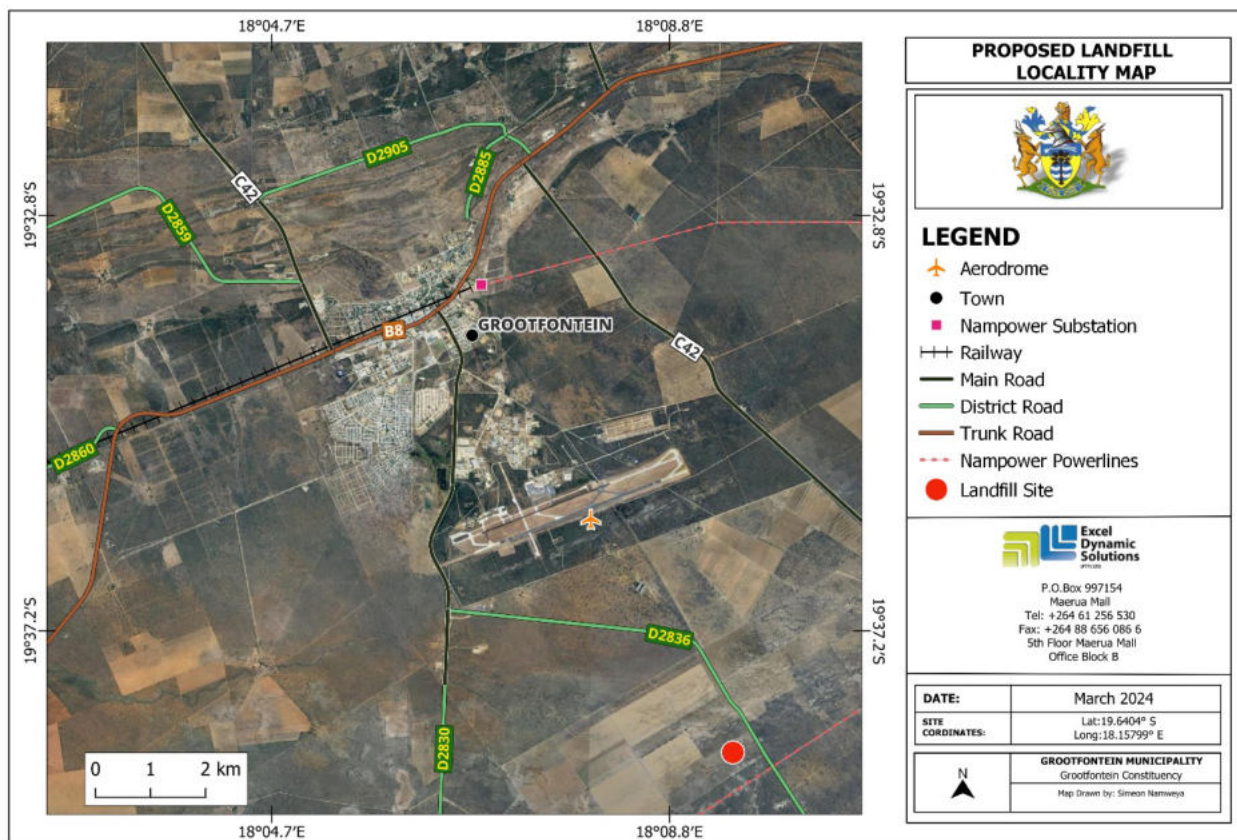


Figure 1: Locality map of the proposed landfill site

According to Section 27 (1) of the Environmental Management Act (EMA), no. 7 of 2007, and in line with Sections 32-37 of the EMA as gazetted in 2012, the proposed Establishment and operation of the landfill formed part of the listed activities that may not be conducted without an EIA being undertaken. The relevant listed activities as per EIA regulations are:

- 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.*
- 11.2 *Construction of landfill, camping, leisure and recreation sites.*

This statutory document has been prepared as per requirement in accordance with Section 8 of the EMA (No. 7 of 2007). The compilation of this EMP is one of the requirements (scope of work) presented to Excel Dynamic Solutions (Pty) Ltd by The Proponent. It is required of the Environmental Consultant to comply with the EMA and provide for the following:

- Prepare an explicit Environmental Management Plan to be used as a guideline to monitor compliance with the recommendations stipulated in the EIA, and to assist in managing and monitoring activities throughout landfill operation and maintenance.
- The Environmental Consultant must elucidate in the EMP the roles and responsibilities of the Proponent, the Contractors, and any other identified stakeholders.

1.2 Aim of the Draft Environmental Management (EMP)

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the Environmental Assessment (EA). A '**Management Plan**' is defined as:

"...a plan that describes how activities that may have significant environmental effects on the environment is to be mitigated, controlled and monitored."

An EMP is one of the most important outputs of the EA process as it synthesizes all the proposed mitigation and monitoring actions, set to a timeline, and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented during operation. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This

EMP is a living document and can be amended to adapt and address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of the EMP is to ensure that the proposed project activities are undertaken in an environmentally friendly and sustainable manner. This can be done through effective implementation of the recommended environmental management and mitigation measures contained in the EMP, for which the aim is to avoid and or minimize adverse identified impacts while maximizing the positive impacts.

1.3 Appointed Environmental Assessment Practitioner

To fulfill the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent consulting company to conduct the required EA process on their behalf(Proponent's). This draft EMP will be submitted as part of an application for the proposed establishment and operational of the landfill activities to the Environmental Commission at the Department of Environmental Affairs and Forestry (DEAF), at the Ministry of Environment, Forestry and Tourism (MEFT).

1.4 Environmental Assessment Legal Requirements

The content of the EMP must meet the requirements of Section 8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the landfill activities on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after project implementation.

The Proponent, therefore, has the responsibility to ensure that the activities as well as the EA process conform to the principles of the EMA and must ensure that employees act in accordance with such principles. **Table 1** below lists the requirements of an EMP as stipulated by Section 8(e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required of the landfill site.

Table 1: Applicable legal requirements and permits to the establishment and operational of the landfill in Grootfontein

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended: Government of the Republic of Namibia	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: “...the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to	By implementing the environmental management plan, the establishment will be conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	<p>protect the beauty and character of Namibia...”</p> <p>.Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p>“...Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State.”</p>	
<p>Environmental Management Act (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) Regulations (Government Gazette (GG) No. 4878 Government Notice (GN) No. 30)</p>	<p>The EMA has stipulated requirements to complete the required documentation to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities</p>	<p>The ECC should be renewed every 3 years, counting from the date of issuance. Contact details at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner</p>
<p>Nature Conservation Amendment Act, No. 3 of 2017: Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>The Ordinance provides a legal framework that protects objects/structures such as geological, ethnological, archaeological, and historical within the project area.</p>	<p>The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of the areas.</p>
<p>Health & Safety Regulations, GN 156/1997(GG1617) :</p>	<p>Makes provision for the health and safety of persons employed or otherwise present in areas. These deal with among other matters;</p>	<p>The Proponent should comply with all these regulations with respect to their employees.</p>

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Ministry of Health and Social Services (MHSS)	clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	
Water Act 54 of 1956: Ministry of Agriculture, Water and Land Reform (MAWLR)	<p>The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act No 54 of 1956 is still in force:</p> <p>It 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)).</p> <p>The Act provides for the control and protection of groundwater (S66 (1), (d (ii))).</p> <p>It also regulates liability for clean-up costs after the closure/abandonment of an activity (S3 (l)). (l)).</p>	The protection (both quality and quantity/abstraction) of water resources should be a priority.
National Heritage Act No. 27 of 2004: Ministry of Education, Arts, and Culture (MEAC)	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with this act's requirements. The necessary management measures and related permitting requirements must be taken. This is to be done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be incorporated into the Draft EMP.
The National Monuments Act (No. 28 of 1969): Ministry of Education, Arts, and Culture (MEAC)	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969): Ministry of Agriculture, Water	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	Duty of care must be applied to soil conservation and management measures must be included in the EMP.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
and Land Reform (MAWLR)	resources, through directives declared by the Minister.	
Forestry Act (Act No. 12 of 2001: Ministry of Environment, Forestry and Tourism (MEFT)	The Act provides for the management and use of forests and forest products. Section 22. (1) provides: "Unless otherwise authorized by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a dune or drifting sand or a gully unless the cutting, destruction or removal is done for the purpose of stabilizing the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919): Ministry of Health and Social Services (MHSS)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617): Ministry of Health and Social Services (MHSS)	Details various requirements regarding the health and safety of labourers.	
Public and Environmental Health Act No. 1 of 2015: Ministry of	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other	The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Health and Social Services (MHSS)	condition liable to be injurious or dangerous to health.	dangerous to public health and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels. Public and environmental health should be preserved and remain uncompromised.
Hazardous Substance Ordinance, No. 14 of 1974: Ministry of Health and Social Services (MHSS)	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal, and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment
Road Traffic and Transport Act, No. 22 of 1999: Ministry of Works and Transport (Roads Authority of Namibia)	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access to existing roads, the relevant permits will be required.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.
Labour Act (No. 6 of 1992): Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)	Ministry of Labour, Industrial Relations and Employment Creation 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 ensures the effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the activities do not compromise the safety and welfare of workers.

1.5 Draft EMP Limitations

This EMP has been drafted with the acknowledgment of the following limitations:

- This EMP has been drafted based on the Environmental Assessment (EA) conducted for the establishment and operational of the landfill in Grootfontein.
- The mitigation measures recommended in this EMP document are based on the risks/impacts in the ESA Report which were identified based on the project description as provided by the Proponent, site investigation, and public input. Should the scope of the proposed project change, the risks/impacts will have to be reassessed and mitigation measures provided accordingly.

2 EMP ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility at any time, as they deem necessary during the project phases. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set out below:

2.1 Competent Monitoring Authority: Department of Environmental Affairs and Forestry (DEAF, MEFT)

The DEAF is responsible for enforcing compliance with the EMA, its regulations, and the full implementation of this EMP. The competent authority also reviews biannual reports and grants ECC renewal after 3 years.

2.2 The Proponent or Proponent's Representative (PR)

If the Proponent does not intend to manage all aspects and activities referred to in this EMP, they should assign this responsibility to a suitably qualified individual referred to in this plan as the Proponent's Representative (PR). The PR may be appointed to manage all phases of the project or to manage only the EMP aspects of the project. The PR's responsibilities may include:

- Managing the implementation of this EMP and updating and maintaining it when necessary.
- Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP.
- Issuing fines for contravening EMP provisions.

2.3 Site Manager (as appropriate)

This individual is responsible for ensuring that the establishment of the landfill is completed on time. The Manager's duties and responsibilities include:

- Ensuring that relevant commitments contained in the EMP Action Plans are adhered to.
- Ensuring that relevant staff is trained in procedures entailed in their duties.
- Maintaining records of all relevant environmental documentation for the project.
- Reviewing the EMP annually and amending the document when necessary.
- Issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site.
- Coordinating with all relevant interested and affected parties/stakeholders.
- Development and management of schedules for daily activities.

2.4 Environmental Control Officer (ECO)

The Proponent may assign the responsibility of ensuring EMP compliance throughout the project life cycle to a designated member of staff or externally qualified and experienced person, referred to in this EMP as the Environmental Control Officer (ECO). The ECO will have the following responsibilities:

- Conducting site inspections (recommended frequency is monthly or weekly as recommended – please refer to Table 3) of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP.
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP.
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

Archaeology: Chance Finds Procedure (CFP) Implementation Roles

The following personnel has been assigned responsibilities as per the Chance Finds procedure (Appendix 1):

- **Operator:** To exercise due caution if archaeological remains are found.
- **Foreman:** To secure the site and advise management timeously.
- **Superintendent:** To determine safe working boundaries and request inspection.

- **Archaeologist:** To inspect, identify, advise management, and recover remains.

The Proponent should assess these commitments in detail and should acknowledge their obligation to the specific management actions detailed in the Tables under the following sections.

3 ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES

3.1 Management of Key Potential Adverse Environmental Impacts

From the assessment conducted, the following key potential negative impacts have been identified and are summarized below.

- Soil disturbance from earthworks.
- Groundwater pollution from infiltration of dissolved waste into surrounding soils and eventually water resources systems.
- Surface water pollution: During heavy rains, rainwater may carry wastes from the landfill to nearby places.
- General environmental pollution through mishandling of project-related waste during construction and operational phases.
- Loss of biodiversity through the removal of vegetation that may be found within the site footprints.
- Air pollution by potential dust on untarred roads and gas emissions from construction activities (excavations, heavy vehicles, and machinery).
- Health and safety: improper handling of site materials and equipment may cause health and safety risks.
- Archaeological or cultural heritage impact through uncovering of unknown objects on-site (when carrying out earthworks).

3.2 Aim of the Environmental Management Plan Actions

The aim of the management actions of the EMP is to avoid the above-listed potential negative impacts, where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts. The measures recommended (**Table 2 and Table 3**) for the potential impacts as described and assessed in the EIA Report.

The responsible person(s) should assess these actions in detail and acknowledge their commitment to the specific management actions detailed in the phases given under the following subsections.

3.3 Planning and establishment Phase Management Action Plans (Mitigation Plan)

The management action plans recommended for this phase are presented in **Table 2** below.

Table 2: Management and mitigation action plans for the pre-development, construction, and operational for the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
PRE-DEVELOPMENT PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	<p>-A Comprehensive Health and Safety Plan for the project activities should be compiled. This will include all the necessary health, safety, and environmental considerations applicable to respective works on sites.</p> <p>-An EMP non-compliance penalty system should be implemented onsite.</p> <p>The Proponent should appoint an ECO to be responsible for managing the EMP implementation and monitoring.</p>	-All required Plans and systems are compiled and in place and Environmental Control Officer (ECO) is appointed	Proponent	<p>-EMP Implementation Plans and Systems.</p> <p>-Identification of all persons involved in the implementation of the EMP.</p>	Pre-development works.

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Authorizations	Lack of permits/licenses	<p>-All the required agreements and licenses or permits should be applied for and signed, before commencement of work on the site or as required.</p> <p>The permits, agreements referred to herein include:</p> <ul style="list-style-type: none"> - Obtaining an ECC for the proposed project. 	<p>-Applicable permits and licenses to be obtained from the relevant authorities and kept on site for records keeping future inspections.</p> <p>-Agreements/permits signed and obtained from on time, min. 2 months prior to construction commencement date of works.</p>	Proponent	Respective authorities and services provider(s)	Prior to construction works.
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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
<p>Communication between the Proponent and other neighboring land users and custodians.</p>	<p>Lack of communication (proper liaison) between other land users (farmers) and Proponent with regards to land use.</p>	<p>-The Proponent should appoint a Public Relation Officer (PRO) to liaise with the land users, e.g. farmers near the proposed landfill. - A clear communication procedure/plan which should include a grievance mechanism.</p>	<p>-A PRO is appointed. -Ongoing stakeholder's consultation throughout the project cycles, when and as required. -PRO contact details to be provided to the affected parties.</p>	<p>Proponent</p>	<p>PRO Complaint's logbook</p>	<p>PRO appointment (Prior to project activities) and their responsibilities throughout the project activities.</p>

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Employment	Creation of employment opportunities	-Preference of local people for employment for jobs should be implemented, i.e., permanent residents from the surrounding areas should be employed for the unskilled labour preferentially to out-of-area people (outsiders) where possible. Out-of-area employment should be justified, for example by the unavailability of local skills only. -equal opportunity should be provided for both men and women when and where possible.	-Number of locals employed for pre-development and construction activities	Proponent in collaboration with site manager (if necessary).	Record of employees	Pre-project activities and when necessary, throughout
Specialized procurement of services	Contractors and services	-All services related to the development activities such as construction, the Proponent may need; preference should be given to local providers of such services. If not available locally, the services search should be extended to a regional level (Otjozondjupa Region).	Number of hired contractors.	Proponent Foreman	Record of hired or contracted companies or services providers.	Pre-project activities and when necessary, throughout.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
Construction, Operational and Maintenance Mitigation Measures				
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all site personnel. -All site personnel should be aware of necessary health, safety, and environmental considerations. -The implementation of this EMP should be monitored.	-Compliance monitoring conducted bi-annually and should be recorded. -The ECC is renewed every 3 years	-SHE Officer

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		<p>The site should be inspected, and a compliance audit done throughout the project activities (bi-annually).</p> <p>-Implement EMP non-compliance penalty system onsite.</p>	<p>-Bi-annual reports</p> <p>-Records of EMP training conducted.</p>	
Soils	Physical soil / land disturbance and loss of topsoil during site upgrade	<p>-The topsoil that was stripped from certain site areas should be returned to its initial position, should be returned.</p> <p>-Site soils should not be disturbed, if not needed or related to the actual construction works.</p> <p>-All site maintenance trenches should be backfilled, and areas rehabilitated upon completion of works.</p>	<p>-No stockpiled soils after completion of works</p> <p>-No new gullies.</p>	-SHE Officer
Site Fire outbreaks	Accidental fire outbreaks risks	<p>-Warning signs of “No Smoking” and “No throwing of live cigarettes or firewood inside the dumping site/No open fires” should be clearly written (in English and Afrikaans) and pasted at dumping site entrance.</p> <p>-The site should be equipped with at least two fire extinguishers at the security gate and should be serviced accordingly. The personnel should be trained on how to use extinguishers (basic fire firefighting skills).</p> <p>-No open fires should be created onsite.</p> <p>-The contact details of fire services should be readily and visibly displayed at the entrance office/security control.</p> <p>-All personnel must be sensitised about responsible fire protection measures and good housekeeping such as the removal of flammable materials (e.g., rubbish, dry vegetation, and hydrocarbon-soaked soil) onsite.</p> <p>-The burning of waste onsite should be done between 8am and 15h00 to ensure that there is someone onsite to monitor</p>	<p>-No open fires by site personnel or visitors</p> <p>-Fire extinguishers are readily available and up to date with service</p>	<p>-Proponent</p> <p>-SHE Officer</p> <p>-Site Operator</p>

Grootfontein Municipality

Draft EMP: Establishment & Operational of the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		the fire until it is completely put out before leaving the site, i.e., no open fire should be left onsite unattended.		
Site safety and security	Compromising site security and safety	<p>-A high steel pole wall should be constructed around the site (as proposed under the site upgrading above).</p> <p>-A modern security gate and security control point should be installed at the site entrance.</p> <p>-The site should be equipped with 24-hour security surveillance in case of opportunistic activities such as theft and vandalism.</p>	-The site walls and security measures are in place	<p>-Proponent</p> <p>-Site Contractor</p>
Occupational and community health and safety	Project related injuries and other health and safety related issues on personnel and locals	<p>-Project personnel should be inducted provided on the health & safety measures, including the risks of mishandling equipment, materials on site.</p> <p>-The contact details of ambulance and other extensive health care services should be readily and visibly displayed onsite for the site personnel.</p> <p>-A fully furnished first aid kit should always be onsite and ensure that 2 or 3 site personnel are trained on administering first aid.</p> <p>-Employees and visitors should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, or safety glasses (depending on the job undertaken onsite or sites visited, etc.)</p> <p>-Heavy vehicle, equipment and machinery at or to site should be properly secured to prevent any harm or injury to the Proponent's personnel.</p> <p>-An emergency preparedness plan should be compiled, and all personnel appropriately trained.</p>	<p>-Comprehensive health and safety plan for all project activities compiled.</p> <p>-Occupational Health and Safety Personnel</p> <p>-Health and Safety Trainings</p> <p>-Fully equipped first aid kit onsite</p> <p>-Trained workers to administer first aid</p>	<p>Proponent</p> <p>-SHE Officer</p> <p>-Site Contractor</p>

Grootfontein Municipality

Draft EMP: Establishment & Operational of the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		<p>-Personnel should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol (leading to health & safety risks).</p> <p>-The scavenging of waste by community members should be prohibited as certain waste items could pose health and safety risks such as stumbling on unnoticed broken bottles, rotten food items, chemicals and other potential unhealthy items contained in waste.</p> <p>- Prohibit the entrance of children under the age of 18 into the dumpsite. The waste collection for re-use and recycling should be supervised and done through a designated site workers and following proper procedures.</p>		
Water Resources Use	Over-utilization of water resources	<p>-Project water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water.</p> <p>-Water conservation awareness and saving measures training should be provided to all the project workers so that they understand the importance of conserving water and become accountable.</p>	<p>-No water leakages from site water storage tanks</p> <p>-Water is recycled where possible</p>	<p>-SHE Officer</p> <p>-Site Contractor</p>
Soils and water resources	Soils and water resources pollution	<p>-Particularly during site upgrading, spill control preventive measures should be in place on site to management soil pollution.</p> <p>-During site upgrade, for site areas that will be used for the storage of hazardous waste, consider using an HDPE liner or natural clay liner to eliminate the risk of possible leakage/leachate.</p> <p>-Sensitized personnel on the impacts of soil pollution.</p> <p>-Project machines and equipment should be equipped with drip trays to contain possible oil spills.</p>	<p>-No complaints of pollutants on the soils due to project activities</p> <p>-No visible oil spills on the ground or pollution spots.</p> <p>-Sufficient waste containers provided onsite</p> <p>-Non-permeable material are used on areas where hydrocarbons and potential pollutants are utilized during upgrade works.</p>	<p>-SHE Officer</p>

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Draft EMP: Establishment & Operational of the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		<p>-Polluted soil should be removed immediately and disposed of at an approved and appropriately classified hazardous waste treatment facility.</p> <p>-Refuelling of vehicles should be done offsite (at filling stations in Town).</p> <p>-Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area offsite.</p>		
Biodiversity	Loss Fauna and Flora	<p>-Avoid the killing or hunting of animals (birds, reptiles, mammals (such as baboons)) encountered onsite.</p> <p>-Environmental awareness on importance of biodiversity preservation should be provided to personnel.</p> <p>-The Proponent must ensure if important plants are found on-site, a permit must be acquired to remove such plants and place them at a safe place.</p> <p>-Movement of vehicles must be restricted to existing routes.</p>	<p>-No killing or disturbance of biodiversity</p> <p>- No intentional disturbance or destruction of site vegetation and faunal species</p> <p>Visible preservation of onsite vegetation</p>	<p>-SHE Officer</p> <p>-Site Operator</p>
Road use and safety	Increase in vehicular traffic flow	<p>-The transportation of materials to and from site should be limited to once a week only.</p> <p>-Ensure that the access roads are frequently maintained and have sufficient road signs.</p> <p>-Drivers should possess valid and appropriate driving licenses and adhere to road safety rules.</p> <p>-Drivers should drive 40km/hour and be on the lookout for people and local animals on the roadsides</p> <p>-Drivers should not be allowed to operate vehicles while under the influence of alcohol.</p>	<p>-No complaints from members of the public regarding vehicular traffic issues related to the project activities.</p> <p>-All vehicle drivers are appropriately licensed and possession of valid driving licenses.</p>	<p>-Proponent</p> <p>-SHE Officer</p> <p>-Site Contractor</p> <p>-Site Operator</p>

Grootfontein Municipality

Draft EMP: Establishment & Operational of the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		<p>-The deliveries of waste to the site should be done during weekdays between the hours of 8am and 5pm.</p>		
<p>Archaeology and heritage</p>	<p>Accidental disturbance of archaeological or heritage objects</p>	<p>-During site upgrading, the contractor should be sensitized to exercise and recognize Heritage "Chance Finds Procedure (CFP)" – <u>Appendix 2</u>.</p> <p>-Adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting site works.</p> <p>-When the removing topsoil and subsoil on the site for site upgrade works, the site should be monitored for subsurface archaeological materials.</p>	<p>-Preservation of all artefacts and objects that are discovered on and around the project site during earthworks</p>	<p>-Site Contractor -Site Operator -SHE Officer</p>
<p>Littering and waste management (general waste and sanitation)</p>	<p>Environmental Pollution</p>	<p>-Personnel should be sensitized to dispose of waste in a responsible manner and not to litter.</p> <p>-Ensure that there are no wastes left or disposed of outside the site.</p> <p>-No waste may be buried on site.</p> <p>-Maintain separate areas for different wastes waste onsite.</p> <p>-Encourage the recycling of waste such as bottles, garden refuse and plastic by setting up a recycling centre at the dumping site.</p> <p>-Educate people on the importance of re-usable household waste and encourage recycling of waste.</p>	<p>-No visible litter within and around the site area owing to the Project</p> <p>-Provision of sufficient waste storage containers</p> <p>-Waste management awareness</p>	<p>-Site Contractor -Site Operator -SHE Officer</p>
	<p>Wastewater (sewage)</p>	<p>-Ensure that there are sufficient toilets (septic tank system) for the construction phase and flushing toilets for the operational phase.</p>	<p>-Adequate toilet and basic ablution facilities on site.</p>	<p>-Proponent</p>

Grooffontein Municipality

Draft EMP: Establishment & Operational of the landfill

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility
		<p>-Sewage and wastewater generated onsite during construction should be properly contained for transportation to the Town's sewage treatment facility</p> <p>-Open defecation on /around the site is strictly prohibited.</p>		
Air Quality	Dust generation, fumes (poor air quality)	<p>-Vehicles should only be driven at the authorized site speed of 40km per hour to avoid dust generation.</p> <p>-The heavy vehicles and fumes generating equipment (during site upgrade and maintenance) should not be left idling when not in use.</p> <p>-Avoid heavy trenching during windy times of the day during site upgrading period.</p>	<p>-No complaints from the public about vehicle emissions and dust generation.</p> <p>-Visible efforts to curb dust</p>	<p>-Site Operator</p> <p>-SHE Officer</p> <p>-Site Contractor</p>
Noise	Nuisance	<p>-Noise from operations' vehicles and equipment on the sites should be at acceptable levels.</p> <p>-The site upgrading activities should not be carried out during the night or before 08h00 in the morning and should be carried out during weekdays only.</p> <p>-Working hours for site upgrade works should be restricted to between 8am and 5pm to avoid noise.</p> <p>-Site workers and contractors should be equipped with PPE such as earplugs to reduce exposure to excessive noise during site upgrading.</p>	<p>-No complaints from local communities such as neighbours about excessive noise from site</p> <p>-Noise protective equipment for workers</p>	<p>-Site Contractor</p> <p>-SHE Officer</p>
Visual	Visual nuisance due to the waste heap built-up	<p>-Consider compacting waste to prevent a built-up of a waste heap onsite.</p> <p>-All the available options to improve the aesthetic of the site should be considered to enhance for a better appeal.</p>	Visual impact is addressed	<p>-Proponent</p> <p>-Site Operator</p>

4 ENVIRONMENTAL MONITORING AND REPORTING

To minimize the "medium" and uphold "low" significance ratings of impacts identified and assessed in the ESA report, monitoring reports are to be compiled and submitted to the DEAF for archiving on a bi-annual basis (every 6 months throughout the project operations) or as required by the Environmental Commissioner (as per the ECC conditions). This practice will make any considerations for ECC renewal easy as it nears expiration. Therefore, the Proponent should meritoriously monitor and submit the reports to the DEAF for record-keeping purposes and compliance with environmental legislation.

5 CONCLUSIONS AND RECOMMENDATIONS

In the event that the Environmental Commissioner considers ECC issuance for the proposed project, it is recommended that an ECC may be granted, subject to the following recommendations:

- All mitigations provided in this Report 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.
- The monitoring of the implementation of mitigation measures should be conducted, applicable impact actions taken, reporting done, and recorded as recommended in the Draft EMP.

The proposed establishment, construction and operation of the landfill, poses some sensitive environmental and social components that may be potentially affected, and therefore potential negative impacts stemming from these activities are acknowledged, assessed, and mitigation measures made thereof. The mitigation measures endorsed in the ESA report and management action plans provided in this draft Environmental Management Plan can be considered adequate to elude and/or reduce the risks to acceptable levels. Excel Dynamic Solutions (Pty) Ltd, therefore, assures that these measures are sufficient to enable environmentally sustainable and safe operational of the landfill works on the project area. It is recommended that in the event of issuance of an ECC, written approval for the ECC may be issued on condition that the provided management measures and action plans are effectively implemented on-site and monitored. The monitoring of the environmental components described in the ESA should be conducted by the Proponent and applicable Competent Authorities. This is to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed.

APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

Areas of proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is, therefore, possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such findings.

Scope: The “*chance finds*” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “*A person who discovers any archaeological objectmust as soon as practicable report the discovery to the Council*”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

The manager/Supervisor must report the finding to the following competent authorities:

- National Heritage Council of Namibia (061 244 375)
- National Museum (061 276800),
- National Forensic Laboratory (061 240461).

Archaeological material must NOT be touched. Tempering with the materials is an offence under the heritage act and punishable upon conviction by the law.

Responsibility:

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advise management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman:

- a) Report findings, site location, and actions taken to the superintendent
- b) Cease any works in the immediate vicinity.

Action by the superintendent:

- a) Visit the site and determine whether work can proceed without damage to the findings.
- b) Determine and mark exclusion boundary.
- c) Site location and details to be added to project GIS for field confirmation by archaeologist.

Action by Archaeologist:

- a) Inspect site and confirm the addition to project GIS.
- b) Advise NHC and request written permission to remove findings from the work area.
- c) Recovery, packaging and labeling of findings for transfer to the National Museum.

In the event of discovering human remains:

- a) Actions as above
- b) Field inspection by archaeologist to confirm that remains are human
- c) Advise and liaise with NHC and Police
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.