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## **PROJECT STATUS**

Title	<ul> <li>Environmental Management Plan:</li> <li>SUBDIVISION OF ERF 1000 EXTENSION 5, GROOTFONTEIN INTO 26 PORTIONS AND THE REMAINDER STREET OF ERF 1000</li> <li>REZONING OF PORTIONS 1-13 AND 24 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'</li> <li>REZONING OF PORTIONS 14-23 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'</li> <li>REZONING OF PORTIONS 25, 26 AND RE/1000 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET</li> <li>SUBDIVISION OF ERF 1001 EXTENSION 5, GROOTFONTEIN INTO 23 PORTIONS AND THE REMAINDER</li> <li>REZONING OF PORTIONS 1, 11-22 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'</li> <li>REZONING OF PORTIONS 2-10 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'</li> <li>REZONING OF PORTION 23 AND THE REMAINDER OF ERF 1001 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET</li> </ul>		
Report Status	Final		
Reference	Grootfontein 1001_1001		
Proponent	Mr Gerson Kandjambanga		
Environmental	Kamau Town Planning and Development Specialists		
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Report Date	March 2024		
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#### **Abbreviations**

AIDS Acquired Immuno-Deficiency Syndrome

EA Environmental Assessment

ECC Environmental Clearance Certificate

ECO Environmental Control Officer
EIA Environmental Impact Assessment
EMA Environmental Management Act
EMP Environmental Management Plan

GG Government Gazette

GIS Geographic Information System

GN Government Notice

GPS Global Positioning System

HIV Human Immuno-deficiency Virus I&APs Interested and Affected Parties

NHCN National Heritage Council of Namibia

PR Proponent's Representative

Reg. Regulation
S Section
TB Tuberculosis

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#### 1. Introduction

Kamau Town Planning and Development Specialist (KTPDS), on behalf of Mr. Gerson Kandjambanga, as the rightful owner of Erf 1000 and Erf 1001 Extension 5 Grootfontein (T353/2021 & T3606/2022 respectively), has been appointed as the Environmental Assessment Practitioner (EAP) to conduct an Environmental Impact Assessment for the following:

- SUBDIVISION OF ERF 1000 EXTENSION 5, GROOTFONTEIN INTO 26 PORTIONS AND THE REMAINDER STREET OF ERF 1000
- REZONING OF PORTIONS 1-13 AND 24 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'
- REZONING OF PORTIONS 14-23 (OF ERF 1000), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'
- REZONING OF PORTIONS 25,26, AND RE/1000 (OF ERF 1000), EXTENSION 5
   GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET
- SUBDIVISION OF ERF 1001 EXTENSION 5, GROOTFONTEIN INTO 23 PORTIONS AND THE REMAINDER OF ERF 1001
- REZONING OF PORTIONS 1, 11-22 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'LOCAL BUSINESS'
- REZONING OF PORTIONS 2-10 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO 'RESIDENTIAL 1'
- REZONING OF PORTION 23 AND THE REMAINDER OF ERF 1001 (OF ERF 1001), EXTENSION 5 GROOTFONTEIN FROM 'INDUSTRIAL 1' TO STREET

The above development triggers listed activities in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

An Environmental Management Plan (EMP) is one of the most important outputs of the EIA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This EMP details the mitigation and monitoring actions to be implemented during the following phases of these developments:

- **Planning and Design** the period, prior to construction, during which preliminary legislative and administrative arrangements, necessary for the preparation of erven, are made and engineering designs are carried out. The preparation of construction tender documents forms part of this phase;
- **Construction** the period during which the proponent, having dealt with the necessary legislative and administrative arrangements, appoints a contractor for the development of services infrastructure and construction of the road to service the development as well as any other construction process(s) within the development areas;
- Operation and Maintenance the period during which the services infrastructure will be fully functional and maintained.



It should be noted that to date, no engineering designs have been carried out for the development of the infrastructure associated with this development. The decommissioning of these developments is not envisaged; however in the event that this should be considered some recommendations have been outlined in Table 8.

The decommissioning of these developments is not envisaged; however in the event that this should be considered some recommendations have been outlined in Table 8.

#### 2. Proposed Development

### 2.1. Location, Ownership, Sizes of Portions

Erf 1000 and 1001 Extension 5 Grootfontein are located south-west from the CBD of Grootfontein town. The erven lie on flat surfaces and respectively measure 11631 m<sup>2</sup> and 11633m<sup>2</sup> in extent. The respective erven are located in a predominantly industrial area to the west of the Grootfontein CBD. The respective erven are currently zoned 'Industrial 1'.



Figure 1: Locality of Grootfontein (Source: Google Maps)

#### 2.2. Existing Zoning and Land Use

Erf 1000 and Erf 1001 are currently zoned as 'Industrial 1'. According to the Grootfontein Zoning Scheme, the primary uses of 'Industrial 1' zoning include Industrial, Scrap Yard, Warehouse, Building Yard, Light Industrial, Place Of Entertainment, Truck Port, Public Garage, Service Station and safari Undertaking, SME. While consent uses may include Business Building, Place of Instruction, Gambling House, Noxious Industry, Panel Beating, Place of Assembly. There erven currently lie vacant as seen in **Figure 1** above.



Figure 2: Erf 1000 & Erf 1001 Extension 5 Current Land Use Zoning, and their Immediate Surrounding

#### 2.3. Development Description

Grootfontein is the economic centre to surrounding ore mines, cattle and land cultivating farms. The town of Grootfontein is also a very famous tourist destination because of the then old fort military post. The town also boasts of favourable climate with sufficient rain for land cultivation and cattle breeding. Farmers around the town mostly farm with cattle, maize, peanuts, cotton, sunflower and sorghum. Further on, the town of Grootfontein is the shipping point for timber products from the Kavango East and West regions. All these economic activities in and around the town make it viable for the proposed 'Local Business' zoned portions.

Given the activities that make up the economy of Grootfontein, urbanization rates will always be skyrocketing. As people migrate to Grootfontein in search of better living standards and investment opportunities, there will always be a high demand for residential properties. With ±4847 applicants on the housing waiting list, it is evident that there is a need for plots with residential purposes, it is for these reasons that Kamau Town Planning and Development Specialists lodged the subject application, and commenced with the Environmental Impact Assessment.

# 2.3.1 Subdivision of Erf 1000 Extension 5, Grootfontein into 26 Portions and the Remainder Street of Erf 1000

Erf 1000 was subdivided into 26 Portions and the Remainder (street). The owner of the erven intends to develop dwelling units on some (Portions 14-23) of the erven and to use the rest (Portions 1-13 and 24) for business purposes while Portions 25, 26 and the remainder of Erf 1000 will be reserved for streets. Hence, the need to rezone the respective properties from 'Industrial 1' to 'Residential', 'Local Business' and 'Street' to ensure alignment of the desired land use (residential and local business use) with the Grootfontein Zoning Scheme and to simultaneously subdivide the Erf into 26 portions and the remainder reserved for street measuring 12 meters in width.



Figure 3: Proposed Subdivision Plan of Erf 1000, (Kamau TPDS 2023)

The proposed erf sizes range between 355m² and 568m² and a Remainder of 2403m² for street to provide access to the individual portions as indicated in Table 1 below. Although currently bordered by industrial zoned properties to the west, eastern and northern sides of the erf, the proposed residential land uses are compatible with the land uses to the south of the erf. The erven sizes assigned to the proposed erven are in line with the Ministry of Urban and Regional Development(s) Town Planning Standards and Urban Design Guidelines for Principle Layout Plans, they are comparable with the sizes of the residential erven to the south of the erf and do offer choice to prospective buyers of different income levels.

ERF 1000 Extension 5 Grootfontein		
Portion No.	Size m <sup>2</sup>	Zoning
1	567	Local Business
2	356	Local Business
3	369	Local Business
4	369	Local Business
5	369	Local Business
6	369	Local Business
7	370	Local Business
8	370	Local Business
9	370	Local Business
10	370	Local Business
11	370	Local Business
12	381	Local Business

13	374	Local Business
14	366	Residential 1
15	366	Residential 1
16	366	Residential 1
17	366	Residential 1
18	367	Residential 1
19	367	Residential 1
20	367	Residential 1
21	367	Residential 1
22	368	Residential 1
23	355	Residential 1
24	568	Local Business
25	152	Street
26	13	Street
RE/Str	2238	
Total	11631	

Table 1: Portion sizes for Erf 1000 Extension 5 Grootfontein Subdivision

# 2.3.2 Subdivision of Erf 1001 Extension 5, Grootfontein into 23 Portions and the Remainder of Erf 1001

Erf 1001 was subdivided into 23 Portions and the Remainder. The owner of the erven intends to develop dwelling units on some (Portions 2-10) and to use the rest (Portions 1,11-22 and) for business purposes and to reserve Erf 23 and the remainder for street. Hence, the need to rezone the respective properties from 'Industrial 1' to 'Residential 1', 'Local Business' and street to ensure alignment of the desired land use (residential and local business use) with the Grootfontein Zoning Scheme and to simultaneously subdivide the Erf into 23 portions and the remainder reserved for street measuring 12 meters in width.



Figure 4: Subdivision Plan of Erf 1001, Grootfontein, (Kamau TPDS 2023)

The proposed erf sizes range between 301m² and 323m² and a Remainder of 4230m² for street to provide access to the individual portions as indicated in Table 2 below. Although currently bordered by industrial zoned properties to the west, eastern and northern sides of the erf, the proposed land uses are compatible with the land uses to the south of the erf. The erven sizes assigned to the proposed erven are in line with the Ministry of Urban and Regional Development(s) Town Planning Standards and Urban Design Guidelines for Principle Layout Plans, they are comparable with the sizes of the residential erven to the south of the erf and do offer choice to prospective buyers of different income levels.

ERF 1001 Extension 5 Grootfontein		
Portion No.	Size m²	Zoning
1	303	Local Business
2	301	Local Business
3	307	Local Business
4	315	Local Business
5	315	Local Business
6	315	Local Business
7	315	Local Business
8	315	Local Business
9	315	Local Business
10	315	Local Business
11	303	Residential 1
12	309	Residential 1
13	323	Residential 1
14	323	Residential 1
15	323	Residential 1
16	323	Residential 1
17	323	Residential 1
18	323	Residential 1
19	323	Residential 1
20	323	Residential 1
21	308	Residential 1
22	312	Residential 1
23	2114	Street
RE/Str	2116	Street
Total	11627	

Table 2: Portion sizes of Erf 1001 Extension 5 Grootfontein Subdivision

#### 2.3.3 Proposed Zonings and Land Uses

The owner intends to rezone the properties to 'Local Business', 'Residential 1' and reserve for streets.

- a) Portions 1-26 and the Re/ 1000 (Erf 1000)
  - i. Rezoning Of Portions 1-13 and 24 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'

According to the Grootfontein Town Planning Scheme, the primary uses of the local business zoning include business building, dwelling unit & units above ground floor, safari undertakings, shops, offices, bed and breakfast, guest house and home-based shop. While the consent uses may include, day care centres, self-catering apartments, guest house, place of assembly and shebeen.

ii. Rezoning Of Portions 14-23 (Of Erf 1000), Extension 5 Grootfontein From 'Industrial 1' to 'Residential'

The primary uses of the residential 1 zoning include dwelling unit/s and consent may be obtained for place of instruction, heritage use, day care centre, guest house, backpackers' accommodation, rest camp, self-catering apartments and the owner may obtain approval for resident occupation or for a home based business.

iii. Rezoning of Portions 25, 26 And the Re/1000 (Of Erf 1000), Extension 5 Grootfontein from 'Industrial 1' to Street

Portions 25, 26 and the remainder are reserved for street measuring 12 meters in width.

The figure below presents the proposed zonings for the proposed erven as described above.



Figure 5: Proposed Zoning Plan of Erf 1000, Extension 5, Grootfontein (Kamau TPDS 2023)

- b) Portion 1-23 the Re/1001 (Erf 1001)
  - i. Rezoning of Portions 1, 11-22 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Local Business'

According to the Grootfontein Town Planning Scheme, the primary uses of the local business zoning include business building, dwelling unit & units above ground floor, safari undertakings, shops, offices, bed and breakfast, guest house and home-based shop. While the consent uses may include, day care centres, self-catering apartments, guest house, place of assembly and shebeen.

ii. Rezoning of Portions 2-10 (Of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to 'Residential'

The primary uses of the residential 1 zoning include dwelling unit/s and consent may be obtained for place of instruction, heritage use, day care centre, guest house, backpackers' accommodation, rest camp, self-catering apartments and the owner may obtain approval for resident occupation or for a home-based business.

iii. Rezoning of Portion 23 and the Remainder of Erf 1001 (of Erf 1001), Extension 5 Grootfontein from 'Industrial 1' to Street

Portion 23 and the Remainder of Erf 1001 is reserved for street measuring 12 meters in width.

The figure below presents the proposed zonings for the proposed erven as described above.

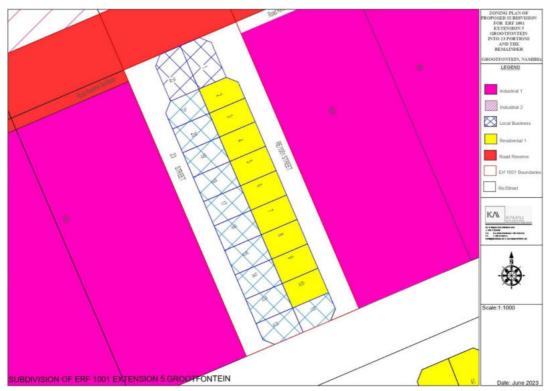


Figure 6: Proposed Zoning Plan (Kamau TPDS 2023)

#### 3. Roles and Responsibilities

The proponent (Mr Gerson Kandjambanga) is ultimately responsible for the implementation of the EMP, from the planning and design phase to the decommissioning phase (if these developments are in future decommissioned) of these developments. The proponent will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Proponent's Representative.
- Environmental Control Officer; and
- Contractor (Construction and Operations and Maintenance).

#### 3.1. Proponents Representative

Mr Gerson Kandjambanga should assign the responsibility of managing all aspects of this development for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Proponent's Representative (PR). The proponent may decide to assign this role to one person for the full duration of these developments, or may assign a different PR to each of the development phases – i.e. one for the planning and design phase, one for the construction phase and one for the operation and maintenance phase. The PR's responsibilities are as follows:

Responsibility	Project Phase
Making sure that the necessary approvals and permissions	Throughout the lifecycle of
laid out in Table 4 are obtained/adhered to.	these developments
Making sure that the relevant provisions detailed in Table 5	<ul> <li>Planning and design phase</li> </ul>
are addressed during planning and design phase.	
Monitoring the implementation of the EMP monthly	Construction
	Operation and maintenance
Suspending/evicting individuals and/or equipment not	Construction
complying with the EMP	Operation and maintenance
Issuing fines for contravening EMP provisions	Construction
	Operation and maintenance

Table 3: PR's responsibilities

#### 3.2. Environmental Control Officer

The CR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation and maintenance phases to an independent external consultant, referred to in this EMP as the Environmental Control Officer (ECO). The CR/ National Housing Enterprise may decide to assign this role to one person for both phases and may assign a different ECO for each phase. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

 Management and facilitation of communication between the CR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;



- Conducting site inspections (recommended minimum frequency is weekly) of all construction and/or infrastructure maintenance areas with respect to the implementation of this EMP (audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this 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; and
- Undertaking an annual review and bi-annual audit of the EMP and recommending additions and/or changes to this document.

#### 3.3. Contractor

Contractors appointed by the National Housing Enterprise are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. Table 6 applies to contractors appointed during the construction phase and Table 7 to those appointed during the operation and maintenance phase. To ensure effective environmental management, the aforementioned chapters should be included in the applicable contracts for outsourced construction, operation, and maintenance work.

The tables in the following chapter (Chapter 4) detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

#### 4. Management Actions

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these developments. These management actions have been organised temporally according to project phase:

- Applicable legislation (Table 4);
- Planning and design phase management actions (Table 5);
- Construction phase management actions (Table 6);
- Operation and maintenance phase management actions (Table 7); and
- Decommissioning phase management actions (Table 8).
- The proponent should assess these commitments in detail and should acknowledge their commitment to the specific management actions detailed in the tables below.

#### 4.1. Assumptions and Limitations

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



- This EMP has been drafted based on the scoping-level Environmental Assessment (EA)
  conducted for the proposed development. Kamau Town Planning and Development
  Specialists will not be held responsible for the potential consequences that may result
  from any alterations to the abovementioned layout.
- No engineering designs have been carried out for the development of the associated services infrastructure (roads, potable water, storm water, sewerage, and electrical reticulations).

#### 4.2. Applicable Legislation

Legal provisions that have relevance to various aspects of these developments are listed in Table 4 below.

Table 4: Legislation applicable to proposed development

Legislation/Policy	Relevant Provision	Relevance to Project
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia."	Sustainable development should be at the forefront of this development.
	Article 95(I) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	
Environmental Management	Section 2 outlines the objective	The development should be
Act No. 7 of 2007 (EMA)	of the Act and the means to achieve that.  Section 3 details the principle of Environmental Management	informed by the EMA.
EIA Regulations GN 28, 29, and	GN 29 Identifies and lists	The following listed activities
30 of EMA (2012)	certain activities that cannot be	are triggered by the proposed
	undertaken without an	development:
	environmental clearance	
	certificate.	Activity 5.1 (d) (Land Use and
	GN 30 provides the regulations governing the environmental assessment (EA) process.	Development) Activity 8.8 (Water resource developments) Activity 10.1 (a) Infrastructure Activity 10.1 (b) Infrastructure Activity 10.2 (a) Infrastructure
Convention on Biological	Article 1 lists the conservation	The project should consider the
Diversity (1992)	of biological diversity amongst the objectives of the convention.	impact it will have on the biodiversity of the area.

Legislation/Policy	Relevant Provision	Relevance to Project
Draft Procedures and	Part 1, Stage 8 of the guidelines	The EA process should
Guidelines for conducting EIAs	states that if a proposal is likely	incorporate the aspects
and compiling EMPs (2008)	to affect people, certain	outlined in the guidelines.
	guidelines should be	
	considered by the proponent in	
	the scoping process.	
Namibia Vision 2030	Vision 2030 states that the	Care should be taken that the
	solitude, silence, and natural	development does not lead to
	beauty that many areas in	the degradation of the natural
	Namibia provide are becoming	beauty of the area.
	sought after commodities and	
	must be regarded as valuable	
	natural assets.	
Water Act No. 54 of 1956	Section 23(1) deals with the	The pollution of water
	prohibition of pollution of	resources should be avoided
	underground and surface	during construction and
	water bodies.	operation of the development.
The Ministry of Environment,	MEFT has recently developed a	The proponent and its
Forestry and Tourism (MEFT)	policy on HIV and AIDS. In	contractor must adhere to the
Policy on HIV & AIDS	addition, it has also initiated a	guidelines provided to manage
	programme aimed at	the aspects of HIV/AIDS.
	mainstreaming HIV and gender	Experience with construction
	issues into environmental	projects has shown that a
	impact assessments.	significant risk is created when
		migrant construction workers
		interact with local
Township and Division of Land	The Townships and Division of	communities.  In terms of Section 19 such
Ordinance 11 of 1963	Land Ordinance regulates	applications are to be
Ordinance 11 or 1903	subdivisions of portions of land	submitted to NAMPAB and
	falling within a Local Authority	Townships Board respectively.
	area.	Townships Board respectively.
Local Authorities Act No. 23 of	The Local Authorities Act	The development must comply
1992	prescribes the manner in which	with provisions of the Local
1332	a town or municipality should	Authorities Act.
	be managed by the Town or	7 13 11 10 11 10 11 10 11
	Municipal Council.	
Labour Act no. 11 of 2007	Chapter 2 details the	Given the employment
	fundamental rights and	opportunities presented by the
	protections.	development, compliance with
	•	the labour law is essential.
	Chapter 3 deals with the basic	
	conditions of employment.	
National Heritage Act No. 27 of	The Act is aimed at protecting,	All protected heritage
2004	conserving and registering	resources (e.g. human remains
	places and objects of heritage	etc.) discovered, need to be
	significance.	reported immediately to the
		National Heritage Council
		(NHC) and require a permit

Legislation/Policy	Relevant Provision	Relevance to Project
		from the NHC before they may
2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		be relocated.
Roads Ordinance 17 of 1972	<ul> <li>Section 3.1 deals with width of proclaimed roads and road reserve boundaries</li> <li>Section 27.1 is concerned with the control of traffic on urban trunk and main roads</li> <li>Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads</li> <li>Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.</li> </ul>	Adhere to all applicable provisions of the Roads Ordinance.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neonatal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	Contractors and users of the proposed development are to comply with these legal requirements.
Nature Conservation Ordinance no. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants.	Indigenous and protected plants must be managed within the legal confines.
Water Quality Guidelines for Drinking Water and Wastewater Treatment	Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment	These guidelines are to be applied when dealing with water and waste treatment.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and	This EIA considers this term of Environment

Legislation/Policy	Relevant Provision	Relevance to Project
,	incorporated into the planning	,
	process, and that the term	
	ENVIRONMENT is broadly	
	interpreted to include	
	biophysical, social, economic,	
	cultural, historical and political	
	components.	
Water Resources Management	Part 12 deals with the control	The pollution of water
Act No. 11 of 2013	and protection of groundwater	resources should be avoided
		during construction and
	Part 13 deals with water	operation of the development.
	pollution control	Should water need to be
		abstracted, a water abstraction
		permit will be required from
		the Ministry of Water,
		Agriculture and Forestry.
Forest Act 12 of 2001 and	To provide for the	Protected tree and plant
Forest Regulations of 2015	establishment of a Forestry	species as per the Forest Act No
	Council and the appointment	12 of 2001 and Forest
	of certain officials; to	Regulations of 2015 may not be
	consolidate the laws relating to	removed without a permit
	the management and use of	from the Department of
	forests and forest produce; to	Forestry.
	provide for the protection of	
	the environment and the	
	control and management of	
	forest fires; to repeal the	
	Preservation of Bees and	
	Honey Proclamation, 1923	
	(Proclamation No. 1of 1923),	
	Preservation of Trees and	
	Forests Ordinance, 1952	
	(Ordinance No. 37 of 1952) and	
	the Forest Act, 1968 (Act No. 72	
	of 1968); and to deal with incidental matters.	
Atmospheric Pollution	Part II - control of noxious or	The development should
Prevention Ordinance No 45 of	offensive gases,	consider the provisions
1965	Part III - atmospheric pollution	outlined in the act. The
	by smoke,	proponent should apply for an
	Part IV - dust control, and	Air Emissions permit from the
	Part V - air pollution by fumes	Ministry of Health and Social
	emitted by vehicles.	Services (if needed).
Hazardous Substance	To provide for the control of	The handling, usage and
Ordinance 14 of 1974	substances which may cause	storage of hazardous
	injury or ill-health to or death	substances on site should be
	of human beings by reason of	carefully controlled according
	their toxic, corrosive, irritant,	to this Ordinance.
	strongly sensitising or	
	flammable nature or the	

Legislation/Policy	Relevant Provision	Relevance to Project
	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.	
Soil Conservation Act No 76 of 1969	Act to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources.	The proposed activity should ensure that soil erosion and soil pollution is avoided during construction and operation.

# 4.3. Planning and Design Phase

The CR should ensure that the management actions detailed below should be adhered to during the period before the construction of the development starts.

Table 5: Planning and design management actions

Aspect	Management Actions
Visual Impacts	<ul> <li>It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible to minimise the visual prominence of such a development within the more natural surrounding landscape.</li> <li>Natural colours and building materials such as wood and stone should be incorporated as well as the use of indigenous vegetation to help beautify the development.         <ul> <li>Visual pollutants can further be prevented through mitigations (i.e. keep existing trees, introduce tall indigenous trees; keep structures unpainted and minimising large advertising billboards).</li> </ul> </li> </ul>
Stormwater	• Stormwater runoff should be accommodated within the street creation to ensure that the natural flow of water is not disturbed.
Existing Servi Infrastructure	<ul> <li>It is recommended that the subject area should be connected to the existing services.</li> <li>An investigation by an engineer is to be done to determine whether the existing services would be sufficient for the additional number of portions.</li> </ul>

Flora (Biodive	and rsity)	Fauna	•	Do not clear cut the entire development site, but rather keep the few individual trees/shrubs not directly affecting the developments as part of the landscaping.
			•	Protected trees are not to be removed without a valid permit from the Department of Forestry.

#### 4.4. Construction Phase

The management actions listed in Table 6 apply during the construction phase. This table may be used as a guide when developing EMPs for other construction activities within these development areas.

**Table 6: Construction phase management actions** 

Environmental	Impact	Management Actions	Responsible
Feature			Person
EMP training	Lack of EMP awareness and the implications thereof.	<ul> <li>All construction workers are to undergo EMP training that should include as a minimum the following:</li> <li>Explanation of the importance of complying with the EMP.</li> <li>Discussion of the potential environmental impacts of construction activities.</li> <li>Employees' roles and responsibilities, including emergency preparedness.</li> <li>Explanation of the mitigation measures that must be implemented when work groups carry out their respective activities.</li> </ul>	Contractor, PR
Conservation of vegetation	Loss of biodiversity	<ul> <li>The layout and development design should incorporate existing trees¹.</li> <li>The Contractor should compile a Plant Management Plan which should include the following as a minimum:         <ul> <li>Trees to be preserved should be marked with paint (or other means to be readily visible) and protected.</li> <li>Prevent the destruction of protected and endemic plant species. If trees with stem diameter &gt; 20mm be found within the development site, it should be conserved and be made part of the development.</li> <li>Trees, which are impossible to conserve, need to be identified and.</li> <li>The Contractor should apply to the local authority for a permit to remove these trees (prior to removing them).</li> </ul> </li> </ul>	Contractor

 $<sup>^{\</sup>rm 1}$  a "tree" is defined as an indigenous woody perennial plant with a trunk diameter  $\geq \! 150$  mm.



Environmental Feature	Impact	Management Actions	Responsible Person
		<ul> <li>Special protection should be accorded to the protected endemic species, which are to be found within the development area (As per the Forest Act 12 of 2001 and Forest Regulations of 2015).</li> <li>Each tree that is removed needs to be replaced with an indigenous tree species after construction.</li> <li>Some of these trees can be obtained at the National Botanical Research Institute (NBRI) or at a commercial nursery.</li> <li>Only a limited width +/- 5 m on the side of roads may be partially cleared of vegetation.</li> <li>Workers are prohibited from collecting wood or other plant products on or near work sites.</li> <li>No alien species may be planted on or near work areas.</li> </ul>	
Lay-down areas and materials camp	Loss of biodiversity	Suitable locations for the contractors lay-down areas and materials camp should be identified with the assistance of the PR and the following should be considered in selecting these sites:  • The areas designated for the services infrastructure should be used as far possible.  • Second option should be degraded land.  • Avoid sensitive areas (e.g. rivers/drainage lines).	Contractor and PR
Hazardous waste	Contaminati on of surface and groundwater sources.	<ul> <li>All heavy construction vehicles and equipment on site should be provided with a drip tray.</li> <li>All heavy construction vehicles should be maintained regularly to prevent oil leakages.</li> <li>Maintenance and washing of construction vehicles should take place only at a designated workshop area and should not take place on open soil.</li> </ul>	Contractor
Water, Sewage, and grey water	Contaminati on of surface and groundwater sources and water wasting	<ul> <li>The wash water (grey water) collected from the cleaning of equipment on-site should not be left standing for long periods of time as this promotes parasite and bacterial proliferation.</li> <li>Grey water should be recycled:         <ul> <li>Used for dust suppression.</li> <li>Used to water a vegetable garden, or to support a small nursery.</li> </ul> </li> </ul>	Contractor

Environmental Feature	Impact	Management Actions	Responsible Person
		<ul> <li>Used (reused) to clean equipment.</li> <li>Grey water that is not recycled should be removed on a regular basis.</li> <li>No dumping of waste products of any kind in or near water bodies.</li> <li>Heavy construction vehicles should be kept out of any water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks.</li> <li>Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with.</li> <li>Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles.</li> <li>Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies.</li> <li>All materials on the construction site should be properly stored.</li> <li>Construction workers should be given ablution facilities at the construction sites that are located at least 30 m away from any surface water and ground water resources and should be regularly serviced.</li> <li>Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment these should be done at an area properly suited and prepared to receive and contain</li> </ul>	
General waste	Visual impact and soil contaminatio n	<ul> <li>polluted waters.</li> <li>The construction site should be always kept tidy.</li> <li>All domestic and general construction waste produced daily should be cleaned and contained daily.</li> <li>No waste may be buried or burned.</li> <li>Waste containers (bins) should be emptied regularly and removed from site to a recognised (municipal) waste disposal site.</li> <li>All recyclable waste needs to be taken to the nearest recycling depot where practical.</li> <li>Enough separate bins for hazardous and domestic/ general waste must be provided</li> </ul>	Contractor

Environmental Feature	Impact	Management Actions	Responsible Person
		<ul> <li>on site. These should be clearly marked as such.</li> <li>Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter.</li> <li>No waste may remain on site after the completion of the project.</li> <li>Strictly, no burning of waste on the site or at the disposal site is allowed as it possess environmental and public health impacts;</li> </ul>	
Topsoil	Loss of topsoil and associated opportunity costs	<ul> <li>When excavations are carried out, topsoil<sup>2</sup> should be stockpiled in a demarcated area.</li> <li>Stockpiled topsoil should be used to rehabilitate post-construction degraded areas and/or other nearby degraded areas if such an area is located a reasonable distance from the stockpile.</li> </ul>	Contractor
Rehabilitation	Visual impact	<ul> <li>Upon completion of the construction phase consultations should be held with the local community/property owner(s) regarding the post construction use of remaining excavated areas (if applicable).</li> <li>If no post-construction uses are requested, all excavated/degraded areas need to be rehabilitated as follows:         <ul> <li>Excavated areas may only be backfilled with clean or inert fill. No material of hazardous nature (e.g. sand removed with an oil spill) may be dumped as backfill.</li> <li>Rehabilitated excavated areas need to match the contours of the existing landscape.</li> <li>The rehabilitated area should not be higher (or lower) than nearby drainage channels. This ensures the efficiency of revegetation and reduces the chances of potential erosion.</li> <li>Topsoil is to be spread across excavated areas evenly.</li> <li>Deep ripping of areas to be rehabilitated is required, not just simple scarification, to enable rip lines to hold water after heavy rainfall.</li> <li>Ripping should be done along slopes, not up and down a slope, which could lead to enhanced erosion.</li> </ul> </li> </ul>	Contractor, CR

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<sup>&</sup>lt;sup>2</sup> Topsoil is defined here as the top 150mm of surface material, which accounts for the seedbank.

Environmental Feature	Impact	Management Actions	Responsible Person
Road safety	Injury or loss of life	<ul> <li>Demarcate roads to be used by construction vehicles clearly.</li> <li>Off-road driving should not be allowed.</li> <li>All vehicles that transport materials to and from the site must be roadworthy.</li> <li>Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules.</li> <li>Loads upon vehicles should be properly secured to avoid items falling off the vehicle.</li> </ul>	Contractor
Safety around work sites	Injury or loss of life	<ul> <li>Excavations should be left open for the shortest time possible.</li> <li>Excavate short lengths of trenches and box areas for services or foundations in a manner that will not leave the trench unattended for more than 24 hours.</li> <li>Demarcate excavated areas and topsoil stockpiles with danger tape.</li> <li>All building materials and equipment are to be stored only within set out and demarcated work areas.</li> <li>Comply with all waste related management actions stated above in this table.</li> </ul>	Contractor
Ablutions	Noncomplian ce with Health and Safety Regulations	<ul> <li>Separate toilets should be available for men and women and should clearly be indicated as such.</li> <li>Portable toilets (i.e. easily transportable) should be available at every construction site:         <ul> <li>1 toilet for every 15 females.</li> <li>1 toilet for every 30 males.</li> <li>Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site in Windhoek.</li> <li>Alternatively, sewage may be pumped into sealable containers and stored until it can be removed.</li> <li>Workers responsible for cleaning the toilets should be provided with environmentally friendly detergents, latex gloves, and masks.</li> </ul> </li> </ul>	Contractor
Open fires	Injury or loss of life	No open fires may be made anywhere on site.	Contractor
General health and safety	Injury or loss of life	A fully stocked first aid kit should permanently be available on-site as well as an adequately trained member of staff capable of administering first aid.	Contractor



Environmental Feature	Impact	Management Actions	Responsible Person
Dust	Nuisance and	<ul> <li>All workers should have access to the relevant personal protective equipment (PPE).</li> <li>Sufficient potable water reserves should be always available to workers.</li> <li>No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable).</li> <li>No workers should be allowed to drink alcohol during work hours.</li> <li>No workers should be allowed on site if under the influence of alcohol.</li> <li>Building rubble and domestic waste should be stored in skips.</li> <li>Condoms should be accessible/ available to all construction workers.</li> <li>Access to Antiretroviral medication should be facilitated.</li> <li>A watering truck should be used on gravel</li> </ul>	Contractor
Dust	health impacts	roads with the heaviest vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought.  • The use of waterless dust suppression means (e.g. lignosulphonate products such as Dustex) should be considered.  • Cover any stockpiles with plastic to minimise windblown dust.  • Dust protection masks should be provided to workers if they complain about dust.  • Vehicles travelling to and from the construction site must adhere to the speed limits to avoid producing excessive dust. A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas.	Contractor
Noise	Nuisance impacts	Work hours should be restricted to between 08h00 and 17h00 and 7:30 – 13:00 on Saturdays where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week's written notice.  • Provide ear plugs and earmuffs to staff undertaking the noisy activity or working within proximity thereof or alternatively, all	Contractor

Environmental Feature	Impact	Management Actions	Responsible Person
		construction workers should be equipped with ear protection equipment.	
Recruitment of labourers	Negative conflict regarding recruitment	<ul> <li>The Contractor should adhere to the below provision as a minimum for the recruitment of labour:</li> <li>Adhere to the legal provisions in the Labour Act for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.).</li> <li>Recruitment should not take place at construction sites.</li> <li>Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside these agreed upon procedures.</li> <li>Contractors should give preference in terms of recruitment of subcontractors and individual labourers to those who are qualified and from the Windhoek project area and only then look to surrounding towns.</li> <li>Clearly explain to all jobseekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary.</li> </ul>	Contractor
Communication	Negative conflict with I&APs	<ul> <li>The Contractor or proponent should draft a Communication Plan, which should outline as a minimum the following:</li> <li>How Interested and Affected Parties (I&amp;APs), who require ongoing communication for the duration of the construction period, will be identified and recorded and who will manage and update these records.</li> <li>How these I&amp;APs will be consulted on an ongoing basis.</li> <li>Make provision for grievance mechanisms – i.e. how concerns can be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event that feedback is deemed unsatisfactory.</li> </ul>	Contractor
General communication	Negative conflict with I&APs	<ul> <li>The PR must appoint an ECO to liaise between the Contractor, I&amp;APs, Developer.</li> <li>The Contractor shall at every monthly site meeting report on the status of the implementation of all provisions of the EMP.</li> </ul>	Contractor, ECO, CR

Environmental Feature	Impact	Management Actions	Responsible Person
		<ul> <li>The Contractor should implement the EMP awareness training as stipulated above in this table.</li> <li>The Contractor must list the I&amp;APs of the project and their contact details with whom ongoing communication would be required for the duration of the contract. This list, together with the Communication Plan must be agreed upon and given to the PR before construction commences.</li> <li>The Communication Plan, once agreed upon by the Developer, shall be legally binding.</li> <li>All communication with the I&amp;APs must take place through the ECO.</li> <li>A copy of the EMP must be available at the site office and should be accessible to all I&amp;APs.</li> <li>Key representatives from the abovementioned list need to be invited to attend monthly site meetings to raise any concerns and issues regarding project progress.</li> <li>The Contractor should liaise with the Developer regarding all issues related to community consultation and negotiation before construction commences.</li> <li>A procedure should be put in place to ensure that concerns raised have been followed-up and addressed.</li> <li>All people on the I&amp;APs list should be informed about the availability of the complaints register and associated grievance mechanisms in writing by the PR prior to the commencement of construction activities.</li> </ul>	
Archaeology	Loss of heritage resources		• o Contractor



Environmental Feature	Impact	Management Actions	Responsible Person
		<ul> <li>Visit site and determine whether work can proceed without damage to findings;</li> <li>Determine and demarcate exclusion boundary;</li> <li>Site location and details to be added to the project's Geographic Information System (GIS) for field confirmation by archaeologist;</li> <li>Inspect site and confirm addition to project GIS;</li> <li>Advise the National Heritage Council of Namibia (NHCN) and request written permission to remove findings from work area; and</li> <li>Recovery, packaging and labelling of findings for transfer to National Museum.</li> <li>Should human remains be found, the following actions will be required:</li> <li>Apply the chance find procedure as described above;</li> <li>Schedule a field inspection with an archaeologist to confirm that remains are human;</li> <li>Advise and liaise with the NHCN and Police; and</li> <li>Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.</li> </ul>	

# 4.5. Operation and Maintenance Phase

The management actions included in Table 7 below apply during the operation and maintenance phase of these developments.

Table 7: Operation and maintenance management actions

Environmental	Impact	Management Actions	Person
Feature			Responsible
EMP training	Lack of EMP awareness and the implications thereof	All contractors appointed for maintenance work on the respective streets must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.	Contractor
Water	Surface and groundwater contamination	Ensure that surface run-off water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an	-  /

Environmental	Impact	Management Actions	Person
Feature			Responsible
		appropriate manner before disposal into the environment.	
Aesthetics	Visual impacts	<ul> <li>The proponent should consult with a view to incorporate the relevant local/national/international development guidelines which addresses the following:</li> <li>The incorporation of indigenous vegetation into the development.</li> <li>To mark the area with appropriate road warning signs (e.g. the road curves to the left/right)</li> <li>'green' technologies should be implemented within the architectural designs and building materials of the development where possible to minimise the visual prominence of such a development within the more natural surrounding landscape.</li> <li>keep existing trees, introduce tall indigenous trees; keep structures unpainted and minimising large advertising billboards.</li> <li>No illegal dumping of waste should be allowed.</li> </ul>	• Proponent
Noise	Nuisance impacts	<ul> <li>No activity having a potential noise impact should be allowed after 18:00 hours if possible.</li> <li>Do not allow commercial activities that generate excessive noise levels.</li> <li>Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits.</li> </ul>	Proponent
Socio-Economic	Social Impacts	The local community be consulted in terms of possible job creation opportunities and must be given priority if unspecialised job vacancies are available.	Proponent

## 4.6. Decommissioning Phase

The decommissioning of these developments is not foreseen as the intended development is envisaged to be permanent. If this infrastructure development is decommissioned the following management actions should apply.



**Table 8: Decommissioning phase management actions** 

Environmental	Management Actions	
Feature		
Decommissioning	Many of the mitigation measures prescribed for construction activity for	
activity	these developments (Table 6 above) would be applicable to some of the	
	decommissioning activities. These should be adhered to where applicable.	

#### 5. Conclusion

The management actions included in this report aim to assist in the avoidance, management and/or mitigation of potential impacts on the environment that may result from the proposed activities. Should the measures recommended in this EMP be implemented and monitored, Kamau Town Planning and Development Specialists is confident that the risks identified in the FESR can be reduced to acceptable levels.