Environmental Assessment Scoping Report for:

December 2020

Township Establishment, creation of street and installation of bulk services for Kahenge Extensions 5, 6 and 7, Nkurenkuru, Kavango West Region

APP002197

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PROJECT DETAILS

Title	Environmental Scoping Report for the: ▪ Township Establishment, creation of street and installation of bulk services for Kahenge Extensions 5, 6 and 7, Nkurenkuru, Kavango West Region		
Report Status	Final		
SPC Reference	Nku/032 and Nku/033		
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Report date	December 2020		
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LEGAL NOTICE

EXECUTIVE SUMMARY

Introduction

The Nkurenkuru Town Council hereinafter referred to as the proponent intends to undertake the following activities:

- **Township Establishment of Kahenge Extension 5 on Portion 11 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Extension 6 Portion 12 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Informal Area on Portion 10 of the Remainder of the farm Nkurenkuru Townlands No 1346 to become known as Kahenge Extension 7, Nkurenkuru.**

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).

As such the proponent appointed Stubenrauch Planning Consultants (SPC) to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

Project Description

The Nkurenkuru Town Council is desirous to formalize the areas along both sides of the B10 (T1001) leading from the planned Kahenge urban area to the boundary line of the area reserved for and by the 'Royal Palace'.

The layout design of Kahenge Extensions 5 and 6 were undertaken with the intent that these two extensions are to complement and support one another.

- **Kahenge Extension 5** is located to the south of the B10 National Road. In addition to provide residential properties it is the aim to also provide a commercial heart at Kahenge which will have the aim to support the urban areas to be developed over time further south of Extension 5.
- **Kahenge Extension 6**, which is located to the north of the B10 National Road has the aim to provide a tourism destination and leisure area which capitalizes on the presence of the flood plain of the Kavango River while also providing opportunities for urban agriculture.

The Nkurenkuru Town Council experienced an influx of households demanding space to erect informal housing units within proximity of the existing Kahenge urban area. It is now the intent of the Council to plan and formalize a new township extension which will have the purpose to cater for the influx of lower income households to Kahenge.

The Town Council identified an area to the west of Kahenge Extension 1 for the development of an informal area. Some 50 households have already been settled within the area on sites as pointed out and demarcated by the Council. These are to be formalized as part of the planning process.

The new extension is to be integrated into the existing urban network of Kahenge in terms of movement linkages (roads), land use and municipal service delivery.

Public Participation

Communication with I&APs about the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing descriptive information about the proposed activities was compiled and sent out to all identified and registered I&APs via email on 29 September 2020 (Appendix C);
- Notices were placed in The New Era and The Sun newspapers dated 29 September 2020 and 6 October 2020, briefly explaining the activity and its locality, inviting members of the public to register as I&APs (Appendix B); and
- Notices were fixed at the project site (see Appendix A);
- A public meeting was held in Nkurenkuru on 9 October 2020 (Appendix C).

Public consultation was carried out according to the Environmental Management Act's EIA Regulations. After the initial notification, the I&APs were given two weeks to submit their comments on the project (until **20 October 2020**). The comment period will remain open until the final scoping report is submitted to MET.

The Draft Scoping Report was circulated from the **13th November 2020 until the 27th November 2020** so that the public could review and comment on it. No comments were received during the comment period.

Conclusions and Recommendations

With reference to **Table 10**, the most significant impact is the impact on flora which was deemed to have a ***High (negative)*** significance impact on the environment. With mitigation the impact can be reduced to a ***Medium (negative)*** significance. The remaining construction impacts were assessed to a ***Medium to Low (negative)*** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP**,** the significance of the construction phase impacts is likely to be reduced to a ***Low (negative)***.

The most significant operational phase impact ***Medium (positive)*** is the social impact. This is as a result of the potential job and economic opportunities during operation as well as the increased development within the area.

It is recommended that this project be authorised because should the development not proceed the subject area will remain vacant and undeveloped. Potential job and economic opportunities may be available to the local people of Nkurenkuru during construction and operation. The significance of the social impact was therefore deemed to be ***Medium (positive)***.

The "no go" alternative was thus deemed to have a ***High (negative)*** impact, as all the benefits resulting from the development would not be realised.

The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of an EMP should be included as a condition of approval.

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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CRR	Comments and response report
dB	Decibels
DESR	Draft Environmental Scoping Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EAR	Environmental Assessment Report
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
FESR	Final Environmental Scoping Report
GTZ	Gesellschaft für Technische Zusammenarbeit
HIV	Human Immunodeficiency Virus
I&AP	Interested and Affected Party
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
MEFT: DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MURD	Ministry of Urban and Rural Development
MWTC	Ministry of Works Transport and Communication
NAMPAB	Namibia Planning Advisory Board
NPC	Namibia Planning Commission
NTC	Nkurenkuru Town Council
PPP	Public Participation Process
SADC	Southern African Development Community
SPC	Stubenrauch Planning Consultants
USAID	United States Agency for International Development
VMMC	Voluntary Medical Male Circumcision

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Nkurenkuru Town Council hereinafter referred to as the proponent intends to undertake the following activities:

- **Township Establishment of Kahenge Extension 5 on Portion 11 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Extension 6 Portion 12 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Informal Area on Portion 10 of the Remainder of the farm Nkurenkuru Townlands No 1346 to become known as Kahenge Extension 7, Nkurenkuru.**

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed project:

Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed project

Activity description and No(s):	**Description of relevant Activity**	**The portion of the development as per the project description that relates to the applicable listed activity**
Activity10.1 (a) Infrastructure	The construction of oil, water, gas and petrochemical and other bulk supply pipelines	The proposed project includes the installation of bulk services (water, electricity and sewage)
Activity10.1 (b) (Infrastructure)	The construction of – Public roads.	The proposed project includes the construction of roads.
Activity 10.2 (a) (Infrastructure)	The route determination of roads and design of associated physical infrastructure where – it is a public road;	The proposed project includes the route determination of roads.

The above activities will be discussed in more detail in Chapter 4. The proponent appointed Stubenrauch Planning Consultants (SPC) to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

The process will be undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) and the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EIA process will investigate if there are any potential significant bio-physical and socio-economic impacts associated with the intended activities. The EIA process would also serve to provide an opportunity for the public and key stakeholders to provide comments and participate in the process.

1.2 PROJECT LOCATION

Kahenge Extension 5 is to be formalized to the west of Kahenge Extension 4. Kahenge Extension 6 is to be formalized to the west of Kahenge Extension 3. The new urban area is located on the higher lying area to the north of the B10 (T1001) and stretches up to the "Royal Palace" boundary line. Please refer to **Figure 1** below for the locality of the proposed townships.

Kahenge Extension 7 is to be formalized to the south of the existing Kahenge urban area, adjacent west to Kahenge Extension 1. With the exception of the informal residential structures the area can be considered to be a green field site. Please see **Figure 2** below for locality of the proposed township.

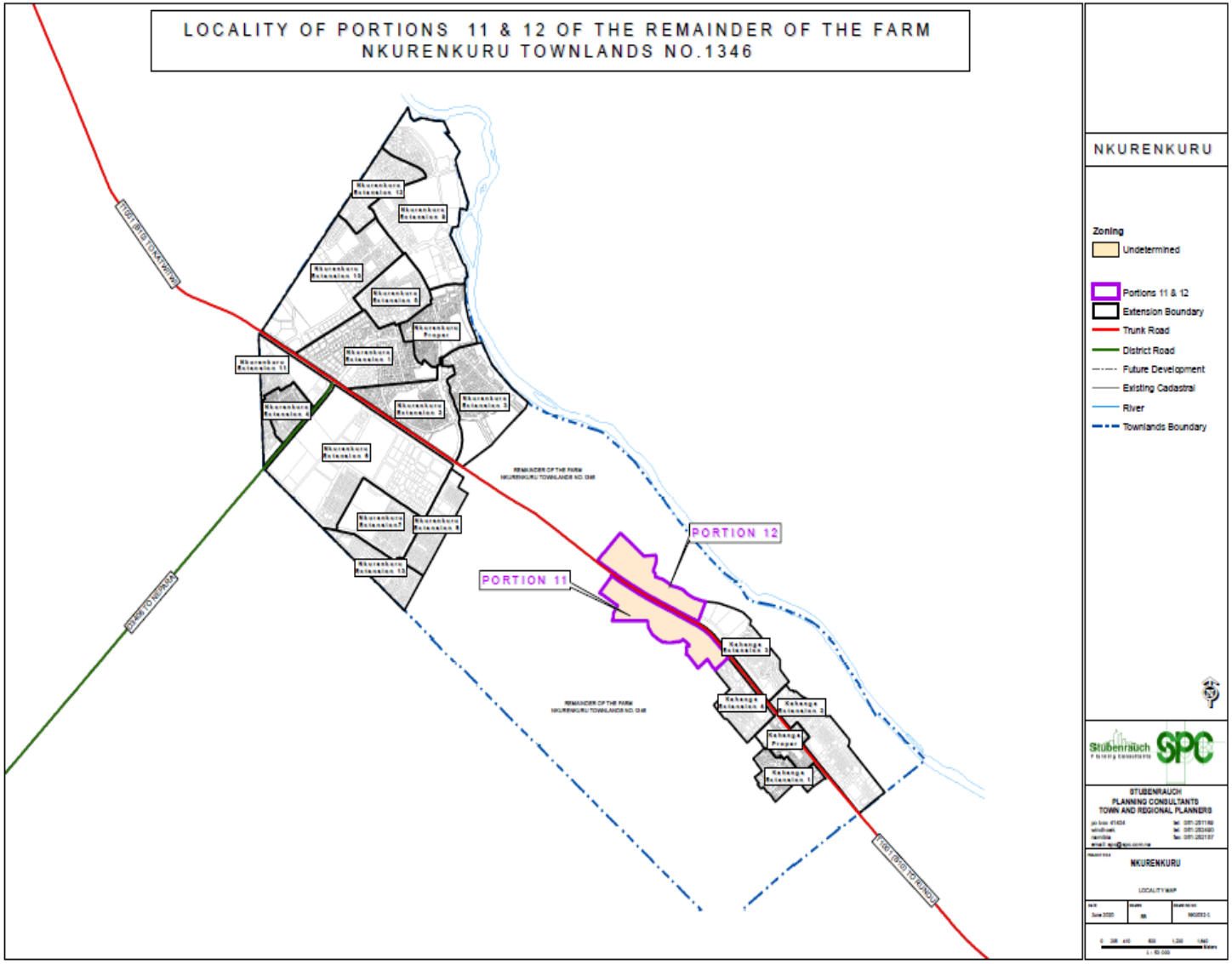

Figure 1: Locality of Proposed Kahenge Extension 5 and 6

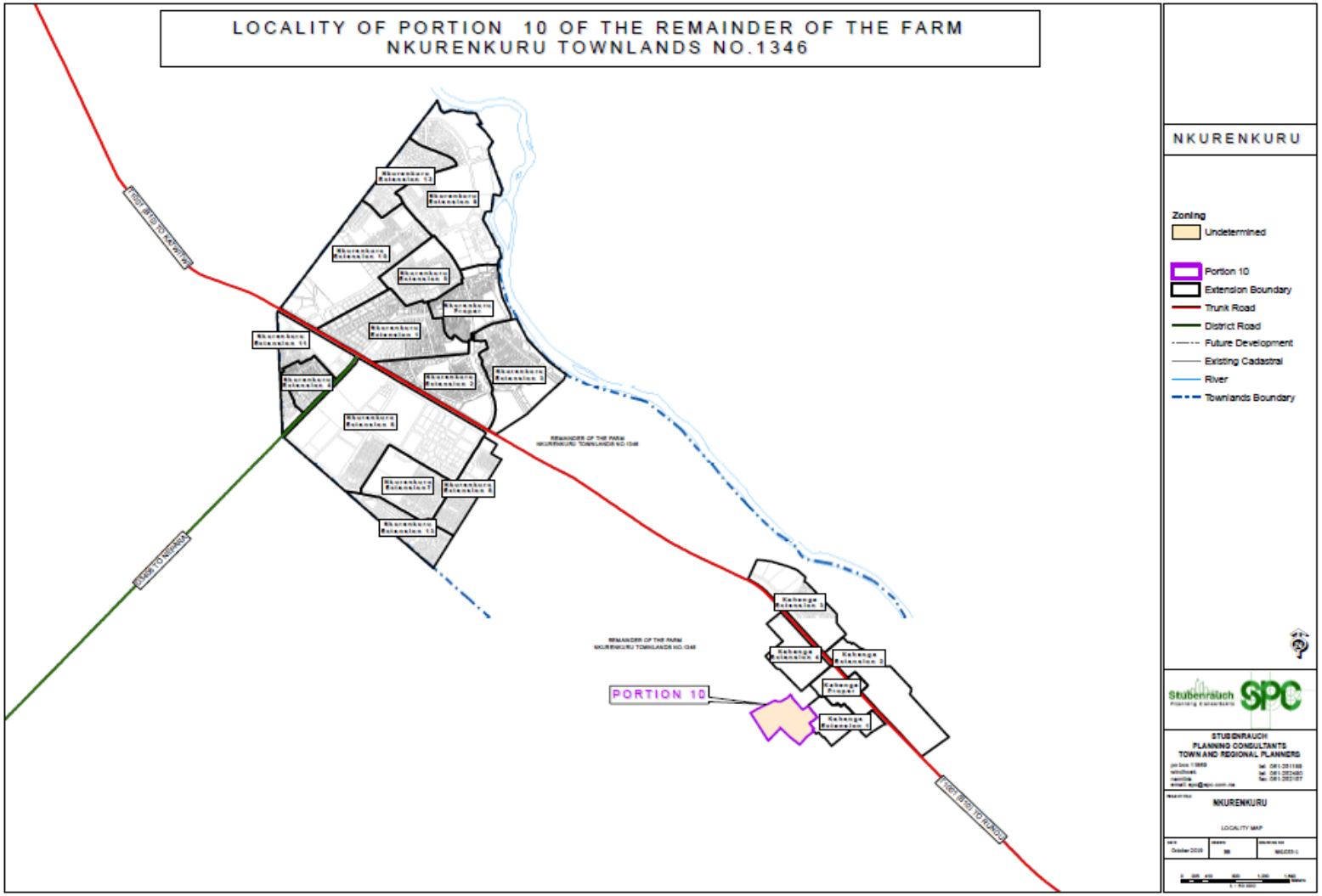

Figure 2: Locality of Proposed Kahenge Extension 7

1.3 TERMS OF REFERENCE AND SCOPE OF PROJECT

The scope of this project is limited to conducting an environmental impact assessment and applying for an Environmental Clearance Certificate for the following as indicated in section 1.1 above:

- **Township Establishment of Kahenge Extension 5 on Portion 11 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Extension 6 Portion 12 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Informal Area on Portion 10 of the Remainder of the farm Nkurenkuru Townlands No 1346 to become known as Kahenge Extension 7, Nkurenkuru.**

1.4 ASSUMPTIONS AND LIMITATIONS

In undertaking this investigation and compiling the Environmental Scoping Report, the following assumptions and limitations apply:

- Assumes the information provided by the proponent is accurate and discloses all information available.
- The limitation that no alternative except for the preferred layout plans and the 'no-go' option was considered during this assessment. The unique character and appeal of Nkurenkuru were however taken into consideration with the design perspective. Various layout alternatives were initially considered by the proponent, also taking terrain and environmental constraints into account, thus the current design plans being the most feasible result.

1.5 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT

Section 8 of the gazetted EIA Regulations requires specific content to be addressed in a Scoping / Environmental Assessment Report. **Table 2** below is an extract from the EMA and highlights the required contents of a Scoping / Environmental Assessment Report whilst assisting the reader to find the relevant section in the report.

Table 2: Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of FESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to **Annexure D**
8 (b)	A description of the proposed activity;	Refer to Chapter 4
8 (c)	A description of the site on which the activity is to be undertaken and the location of the activity on the site;	Refer to Chapter 3
8 (d)	A description of the environment that may be affected by the proposed activity and the	Refer to Chapter 3

Section	Description	Section of FESR/ Annexure
	manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	
8 (e)	An identification of laws and guidelines that have been considered in the preparation of the scoping report;	Refer to Chapter 2
8 (f)	Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including	Refer to Chapter 5
	(i) the steps that were taken to notify potentially interested and affected parties of the proposed application	Refer to Chapter 5
	(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	Refer to **Annexures A** and **B** for site notices and advertisements respectively.
	(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application;	Refer to **Annexure C**
	(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Refer to **Annexure C**
8 (g)	A description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
8 (h)	A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Refer to Chapter 7
8 (i)	terms of reference for the detailed assessment;	NB – Assessment of impacts are included in this EA Report
8 (j)	An environmental management plan	Refer to **Annexure E**

2 LEGAL FRAMEWORK

2.1 LEGISLATION RELEVANT TO THE PROPOSED DEVELOPMENT

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 3** below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

Table 3: Legislation applicable to the proposed development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	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." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principle of Environmental Management	The development should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	The following activities are triggered by the proposed development: **Activity 10.1 (a)** **Activity 10.1 (b)** **Activity 10.2 (a)**
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during construction and operation of the development.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities.
Township and Division of Land Ordinance 11 of 1963	The Townships and Division of Land Ordinance regulates subdivisions of portions of land falling within a Local Authority area	In terms of Section 19 such applications are to be submitted to NAMPAB and Townships Board respectively.
Urban and Regional Planning Act No. 5 of 2018	Chapter 7 deals with the Subdivision or Consolidation of Land.	The development must comply with the provision of the act.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.	The development has to comply with provisions of the Local Authorities Act.
Labour Act no. 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the development, compliance with the labour law is essential.
National Heritage Act No. 27 of 2004	The Act is aimed at protecting, conserving and registering places and objects of heritage significance.	All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Roads Ordinance 17 of 1972	• Section 3.1 deals with width of proclaimed roads and road reserve boundaries • Section 27.1 is concerned with the control of traffic on urban trunk and main roads • Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads • Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.	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 neo-natal 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 have to 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 (see Appendix B).	These guidelines are to be applied when dealing with water and waste treatment

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EIA considers this term of Environment.
Water Resources Management Act No. 11 of 2013	Part 12 deals with the control and protection of groundwater Part 13 deals with water pollution control	The pollution of water resources should be avoided during construction and operation of the development. 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 Forest Regulations of 2015	To provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to 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.	Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may not be removed without a permit from the Ministry of Agriculture, Water and Forestry.
Atmospheric Pollution Prevention Ordinance No 45 of 1965	Part II - control of noxious or offensive gases,	The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	Ministry of Health and Social Services (if needed).
Hazardous Substance Ordinance 14 of 1974	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.	The handling, usage and storage of hazardous substances on site should be carefully controlled according to this Ordinance.
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.

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to **Figure 2** below) provides an outline of the EIA process to be followed.

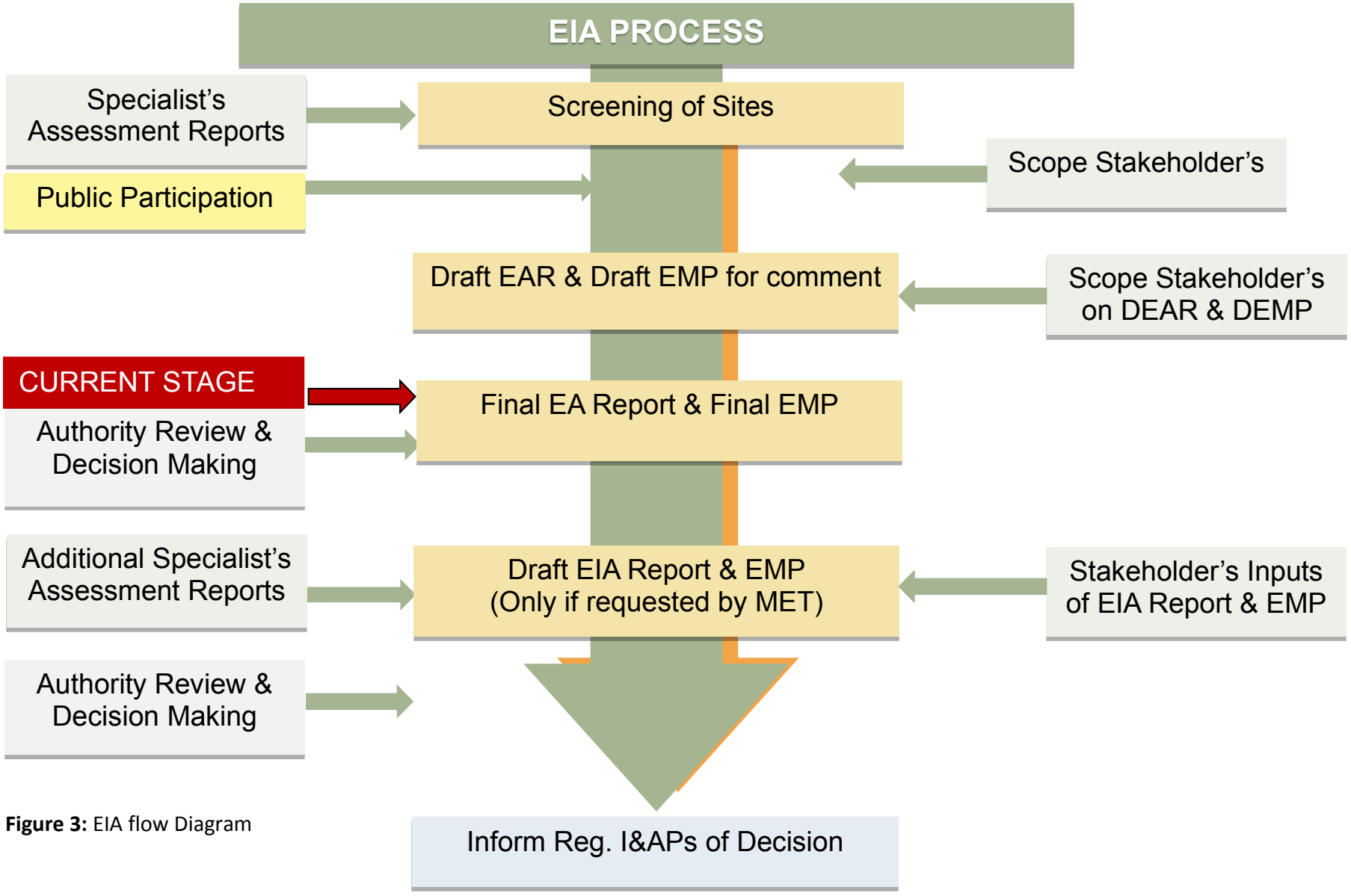

Figure 3: EIA flow Diagram

3 ENVIRONMENTAL BASELINE DESCRIPTION

3.1 SOCIAL ENVIRONMENT

3.1.1 Socio-Economic Context

The statistics shown in **Table 4** below are derived from the 2011 Namibia Population and Housing Census (Namibia Statistics Agency, 2013), and presented from a local and regional perspective.

Table 4: Statistics of the Kavango West Region (Namibia Statistics Agency, 2011)

KAVANGO REGION	
ATTRIBUTE	**INDICATOR**
Population	223 352
Females	96 559
Males	80 115
Population under 5 years	12%
Population aged 5 to 14 years	21%
Population aged 15 to 59 years	59%
Population aged 60 years and above	8%
Female: male ratio	83:100
Literacy rate of 15 years old and above	96%
People above 15 years who have never attended school	7%
People above 15 years who are currently attending school	21%
People above 15 years who have left school	68%
People aged 15 years and above who belong to the labour force	61%
Unemployment rate	37%
Homemakers	6%
Students	62%
Retired or old age income recipients	32%
Income from pension	19%
Income from business and non-farming activities	17%
Income from farming	13%
Income from cash remittance	5%
Wages and salaries	40%
Main Language	Oshiwambo
KAVANGO WEST REGION	
ATTRIBUTE	**INDICATOR**
Population	86,529
Literacy rate	77.3%
Unemployment rate	25%

3.1.2 Archaeological and Heritage Context

The archeological importance of the Kavango West Region is poorly known, however archaeological sites are believed to be concentrated along the Kavango River and the intermediate interior, in a ribbon no more than 5km wide (Ministry of Lands and Resettlement, 2015). The subject site is not known to be of any historical significance. No significant archaeological and heritage sites are known to be located within the proposed development area.

3.2 BIO-PHYSICAL ENVIRONMENT

3.2.1 Climate

The Kavango West Region is generally warm to hot. The average annual temperature ranges above 22°C as indicated in **Figure 3** below. The average maximum temperature for Nkurenkuru varies between less than 34 and 36°C with the average minimum temperature between 6 and 8°C.

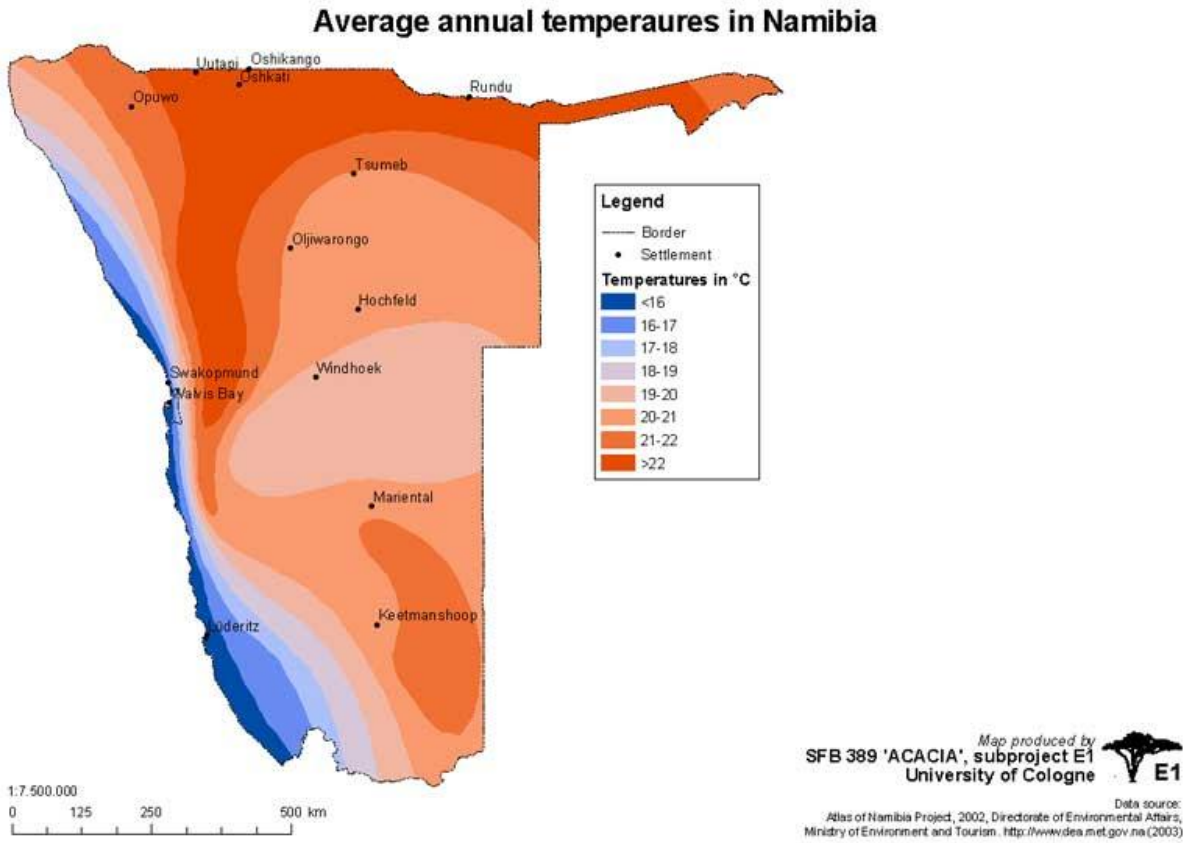

Figure 4: Annual average temperature

(Source: http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/e1_download_climate_e.htm#temperature_annual)

The Kavango West Region experiences higher rainfall than other parts of the country. Rainfall in the region falls during the summer months between October/November to March/April. Average annual rainfall for Nkurenkuru is ranges between 500 to 550 mm per year as indicated in **Figure 4** below.

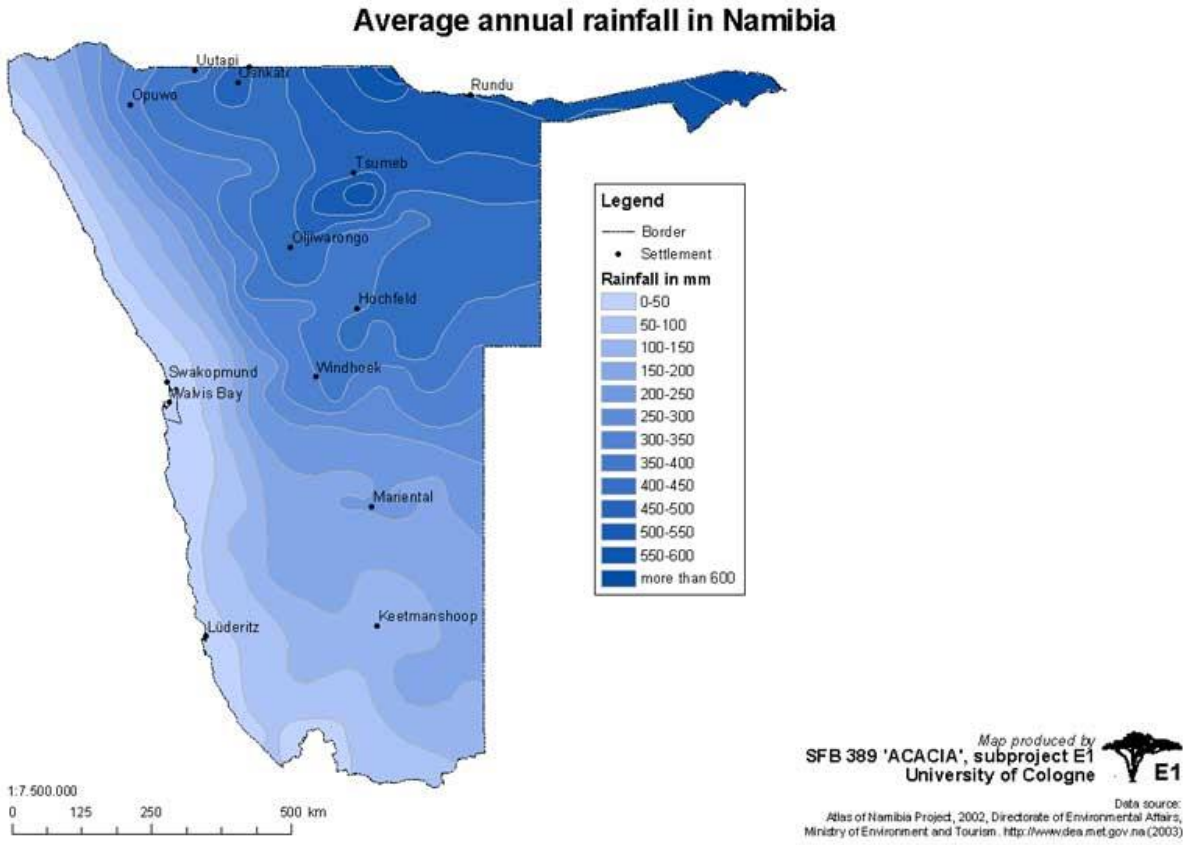

Figure 5: Average annual Rainfall

(Source: http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/climate/rainfall-annual.jpg)

3.2.2 Topography, Geology and Soils

The Kavango West Region consists of gently undulating plains of consolidated sands, sloping gradually down northwards to the Kavango River and eastwards to the lowest areas along the river before it enters Botswana(Ministry of Lands and Resettlement, 2015). The geology of the Kavango West Region falls within the Kalahari Group geological division as depicted in **Figure 5** below. The rock type for the region is described as the Kalahari and Namib sands with sands being the dominant soils (Mendelsohn, Jarvis, Roberts & Roberston, 2002).

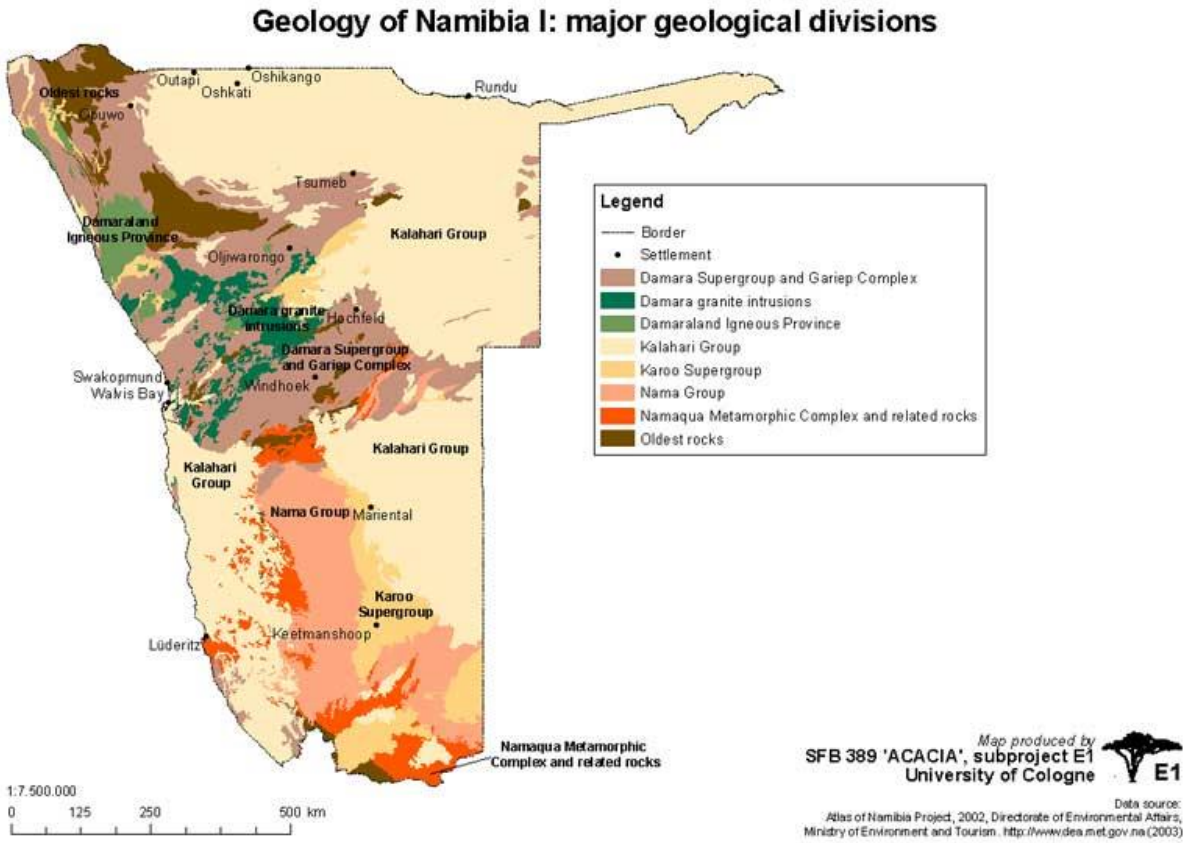

Figure 6: Geology of Namibia

(Source: http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/physical/geology.jpg)

3.2.3 Hydrology and Hydrogeology

The most important feature in the region is the perennial Kavango river. The river is the major source of water for rural communities that are concentrated along it. Water is also abstracted to supply Nkurenkuru and smaller towns and agricultural schemes.

The flat landscape and high permeability of the sandy soil provides very little surface water drainage. As such flooding could potentially occur during high rain events. However, water rarely collects and flows in some of the shallow riverbeds. If they do it is often short-lived due to the vegetation and sediments in the river courses (Ministry of Lands and Resettlement, 2015).

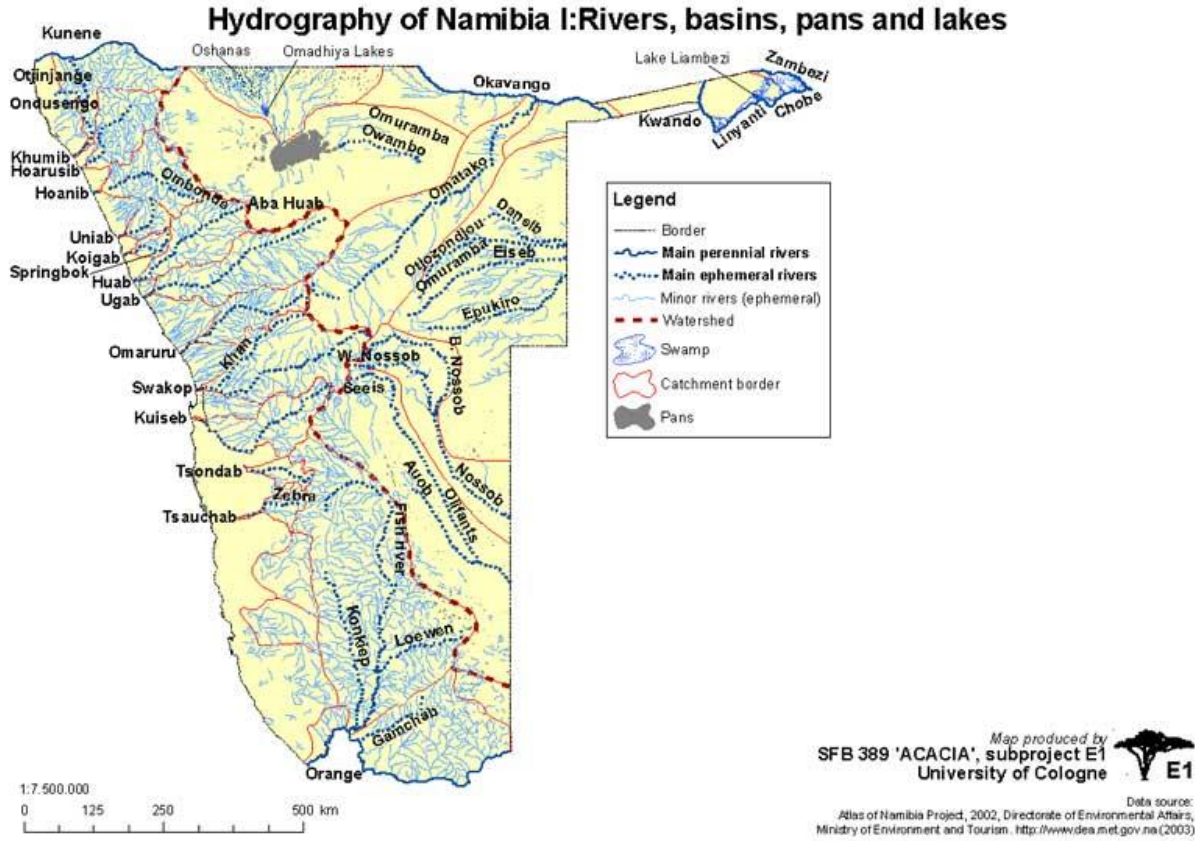

Figure 7: Hydrography of Namibia

(Source: http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/physical/hydrography_1.jpg)

3.3 TERRESTRIAL ECOLOGY

3.3.1 Flora and Fauna

The Kavango West Region belongs to the Tree and Shrub Savanna Biome as depicted in **Figure 8** below. Most of the Kavango West is fairly homogenous Kalahari Woodland comprised of broad-leafed, deciduous woodlands. These vary in terms topography and the soils that support them. Trees commonly found within the region are Kiaat (*Pterocarpus angolensis*), teak (*Baikaea plurijuga*), Silver Terminalia (*Terminalia sericea*), Red Seringa (*Burkea Africana*), False Mopane (*Guibourtia coleosperma*), Mangetti (*Schinziophyton rautanenii*) and Monkey Oranges (*Strychnos cocculoides*). Trees within the region are a valuable source of timber or food sources for rural livelihoods.

During site establishment the proposed township establishments are likely to impact the trees located on each site. It is essential that the protected trees located on site be preserved as they provide food (e.g. fruits) and refuge to fauna and people within the area. A such trees protected

under the Forestry Act 12 of 2001 should be protected within the development. These trees may not be removed from site without a valid permit from the MEFT.

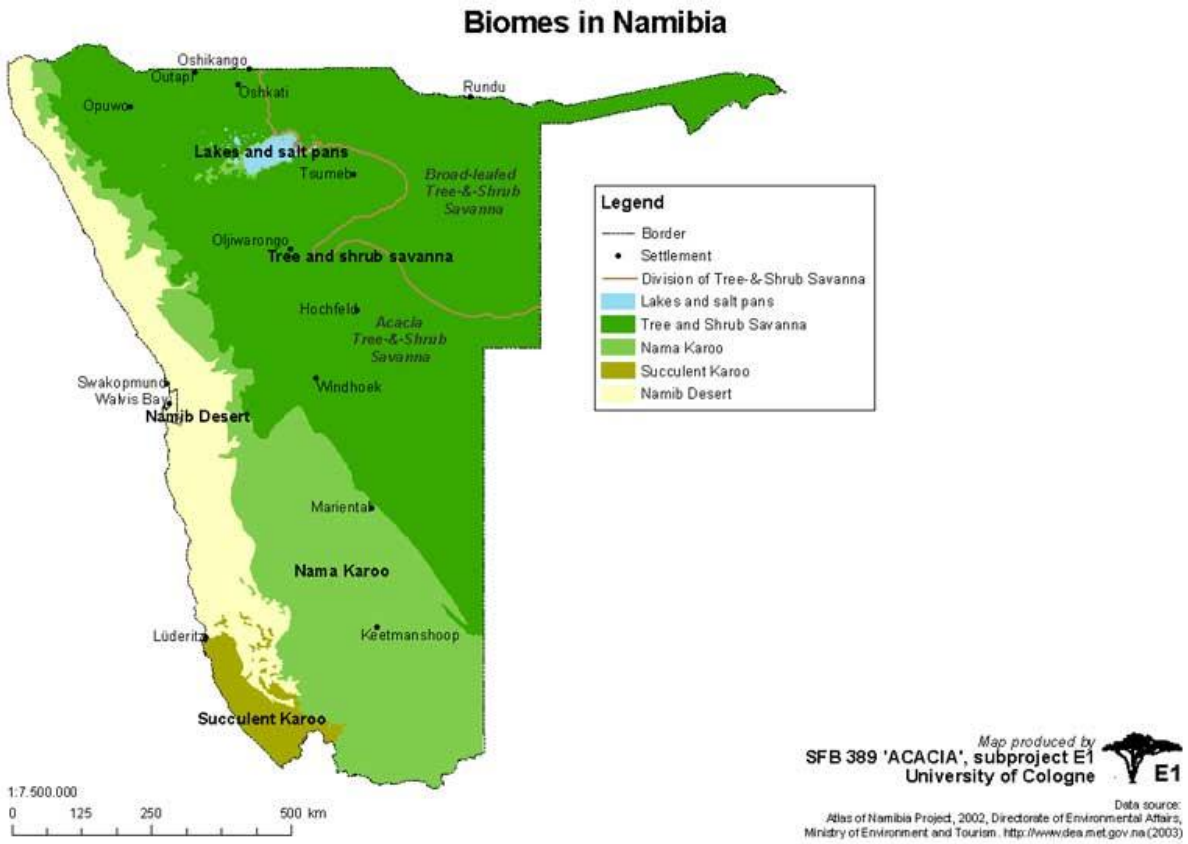

Figure 8: Biomes of Namibia

(http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/living_resources/biomes.jpg)

Much of the wildlife that used to occur along the Kavango River has now disappeared because so much of the natural vegetation has been cleared (Mendelsohn, 2009). The less inhabited parts of the Kavango West Region host a little wildlife – mammal species such as steenbok, kudu and warthog – but has some important conservation areas where key wildlife species occur.

4 PROJECT DESCRIPTION

4.1 PROJECT COMPONENTS

As previously outlined in Section 1.1, the proposed project involves the following activities:

- **Township Establishment of Kahenge Extension 5 on Portion 11 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Extension 6 Portion 12 of the Remainder of the Farm Nkurenkuru Townlands No 1346, Nkurenkuru;**
- **Township Establishment of Kahenge Informal Area on Portion 10 of the Remainder of the farm Nkurenkuru Townlands No 1346 to become known as Kahenge Extension 7, Nkurenkuru.**

These components will be described in further detail below, in terms of their design, layout and footprint.

4.2 ALTERNATIVES

As pointed out in Section 1.4 above various layout alternatives were initially considered by the proponent, ultimately resulting in the final layouts.

4.2.1 No – Go Alternative

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the proposed townships would not be developed. Thus, the Town Council and the residents will not be able to receive the benefits which may result from the construction and operational phase of the development.

4.3 THE PROPOSED DEVELOPMENT

4.3.1 Kahenge Extension 5 and 6

The Nkurenkuru Town Council is desirous to formalize the areas along both sides of the B10 (T1001) leading from the planned Kahenge urban area to the boundary line of the area reserved for and by the 'Royal Palace'.

The layout design of Kahenge Extensions 5 and 6 were undertaken with the intent that these two extensions are to complement and support one another.

- **Kahenge Extension 5** is located to the south of the B10 National Road. In addition to provide residential properties it is the aim to also provide a commercial heart at Kahenge which will have the aim to support the urban areas to be developed over time further south of Extension 5.
- **Kahenge Extension 6**, which is located to the north of the B10 National Road has the aim to provide a tourism destination and leisure area which capitalizes on the presence of the flood plain of the Kavango River while also providing opportunities for urban agriculture.

4.3.1.1 The layout Kahenge Extension 5

The layout prepared for Kahenge Extension 5 is informed by:

- The general traffic linkages as proposed by the Nkurenkuru Structure Plan.
- The opportunity to connect Extension 5 to the existing surfaced (all weather) B10 (T1001) road.
- The street linkages into the adjacent and future township areas.
- The provision of a central neighbourhood shopping node central to the development, inclusive of two local authority property which should be used for the development of a taxi rank central to the commercial node and a tourism orientated market at the B10.
- A local authority site within the eastern mixed-use node of Extension 5 which is to be developed into a taxi rank and market area.
- Five (5) Special zoned erven which are to be reserved for the development of SME stalls and smaller shops and restaurants.
- A central park which should be developed into a leisure park for shoppers, inclusive of the erection of a sculpture or obelisk.
- The provision of a 'Private Open Space' having the purpose to protect the 'Manguni' tree cluster falling within the area.
- The provision of a cemetery site which accommodates the existing graves while reserving space for new graves.
- The provision of a neighbourhood parks where the surrounding community can meet, and children can play. The system of linear parks will enable people to easily access the central business node by foot or bicycle.
- The provision of an institutional site for the development of a church, kindergarten or community facility.
- Two large institutional sites for the development of public or private schools.

- The provision of a 'service station' site adjacent to the properties and opposite to the cemetery site is to be a place making land use defining the eastern entrance to the mixed use commercial area provided for by Kahenge Extension 5.
- A well-defined internal street hierarchy which prevent through traffic through the residential pockets created. The shorter access streets within the residential area have 15-meter street widths, these to increase to 20 meters for the residential collector road. The roads leading to the commercial heart or the distributor roads have street reserves of 25 meters.

The following table provides a summary of the land use and spatial allocation of Kahenge Extension 5.

Table 5: Summary table of land uses provided within Kahenge Extension 5

Land Use	No of Erven	Area (ha)	Spatial Implication (%)
Residential	241	24.72	28.78
Business	54	8.92	10.39
Service Station	1	11.23	13.08
Institutional	5	6.14	7.15
Local Authority	3	1.80	2.10
Special	5	1.25	1.46
Cemetery	1	2.54	2.96
Private Open Space	1	7.23	8.42
Public Open Space	16	11.23	13.07
Street	Remainder	10.83	12.61
TOTAL	**327 & Remainder**	**85.89**	**100.00**

4.3.2 The Layout Kahenge Extension 6

Kahenge Extension 6 offers a unique opportunity to develop a riverfront public and tourism node development on the higher ground which is overlooking the flood plains and the Kavango River. The flood plain area in front of the area chosen for this public node can, over time be excavated and a still water body development in the form of a lake can be developed at the foot of the river edge development where small boats (canoe or paddle boats) activities can be introduced as a permanent recreation attraction. As such the flood plains in front of Kahenge Extension 6 need to be properly surveyed to determine the impact of flood occurrences and, with the assistance of an engineer, be developed into an all year tourism and recreation activity.

The western flood plain area can be used to provide urban agriculture plots which will add to food security while creating employment possibilities at Kahenge. As these areas may be subject to occasional flooding the proponent is advised to consider leasing these areas out to entrepreneurs on short term lease with the provision that no permanent structures may be erected within these areas and that the leases are further subject to performance agreements.

The layout prepared for Kahenge Extension 6 is informed by:

- The general traffic linkages as proposed by the Nkurenkuru Structure Plan.
- The opportunity to connect Extension 6 to the existing surfaced (all weather) B10 (T1001) road.
- The street linkages into the adjacent Kahenge Extension 3.
- The provision of a tourism node within the eastern part of Kahenge Extension 6 from where good views over the lower lying flood plains and the Kavango River can be obtained. A permanent lake can be developed over time to the foot of this development which is to include the following activities:
    - Erf 124 (Special); Caravan park and tent site
    - Erf 125 (Special); Hotel and Conference Centre
    - Erf 126 (Special); A mixed use tourism node which caters for smaller tourism shops, restaurants and short-term rental accommodation but which excludes a big shopping centre development.
    - Erf 1267 (Special); A mixed use tourism node which caters for smaller tourism shops and line shops, restaurants and short-term rental accommodation but which excludes a big shopping centre development.
    - Erf 49 (Special); Braai and ablution facilities and tuck shop; but excluding overnight accommodation facilities
- Business erven at the entrances to Extension 6 from the B10 as these are to form the gateways leading into Extension 6.
- General Residential sites for the development of rental accommodation, flats or bed and breakfast tourism accommodation establishments.
- Residential erven larger than 500m².
- Public open spaces which are to accommodate storm water management measures (to prevent erosion) but which also secure public access to the flood plains and river areas.

- A linear public open belt which accommodates the overhead power line.
- Eleven 'agriculture' sites for urban farming.
- Central neighbourhood parks.
- A well-defined internal street hierarchy which prevent through traffic through the residential pockets created. The shorter access streets within the residential area have 15 meter street widths, these to increase to 30 meters for the northern distributer road running parallel with the B10.

The following table provides a summary of the land use and spatial allocation of Kahenge Extension 6.

Table 6: Summary table of land uses provided within Kahenge Extension 6

Land Use	No of Erven	Area (ha)	Spatial Implication (%)
Residential	108	12.58	17.84
General Residential	7	1.43	2.02
Business	7	2.27	3.22
Special	5	6.20	8.80
Agriculture	13	23.93	33.93
Public Open Space	21	10.24	14.52
Street	Remainder	13.88	19.68
TOTAL	**161 & Remainder**	**70.53**	**100.00**

The land uses for the proposed townships are depicted on **Figure 9 and 10** below.

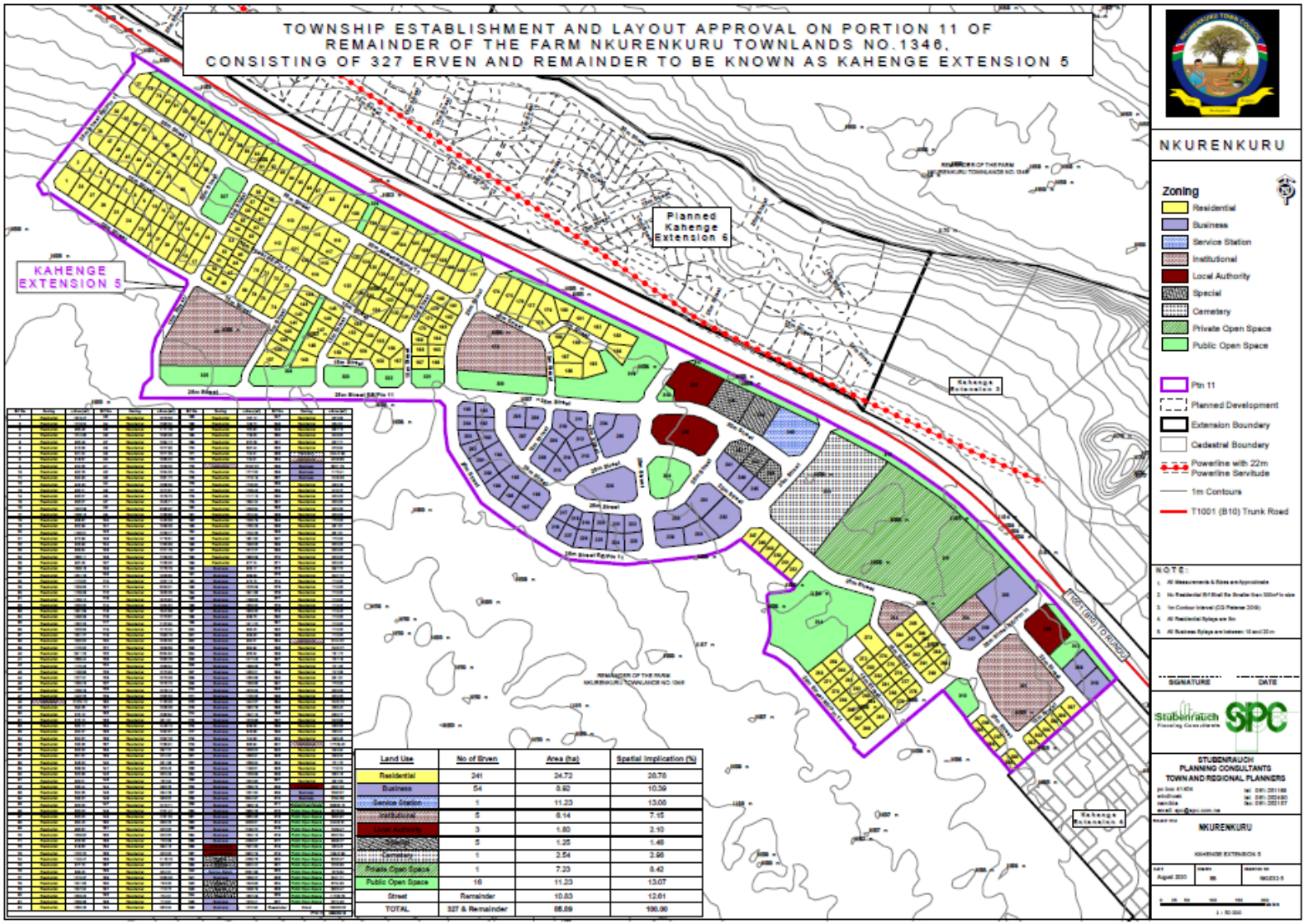

Figure 9: Layout Map of proposed Kahenge Extension 5

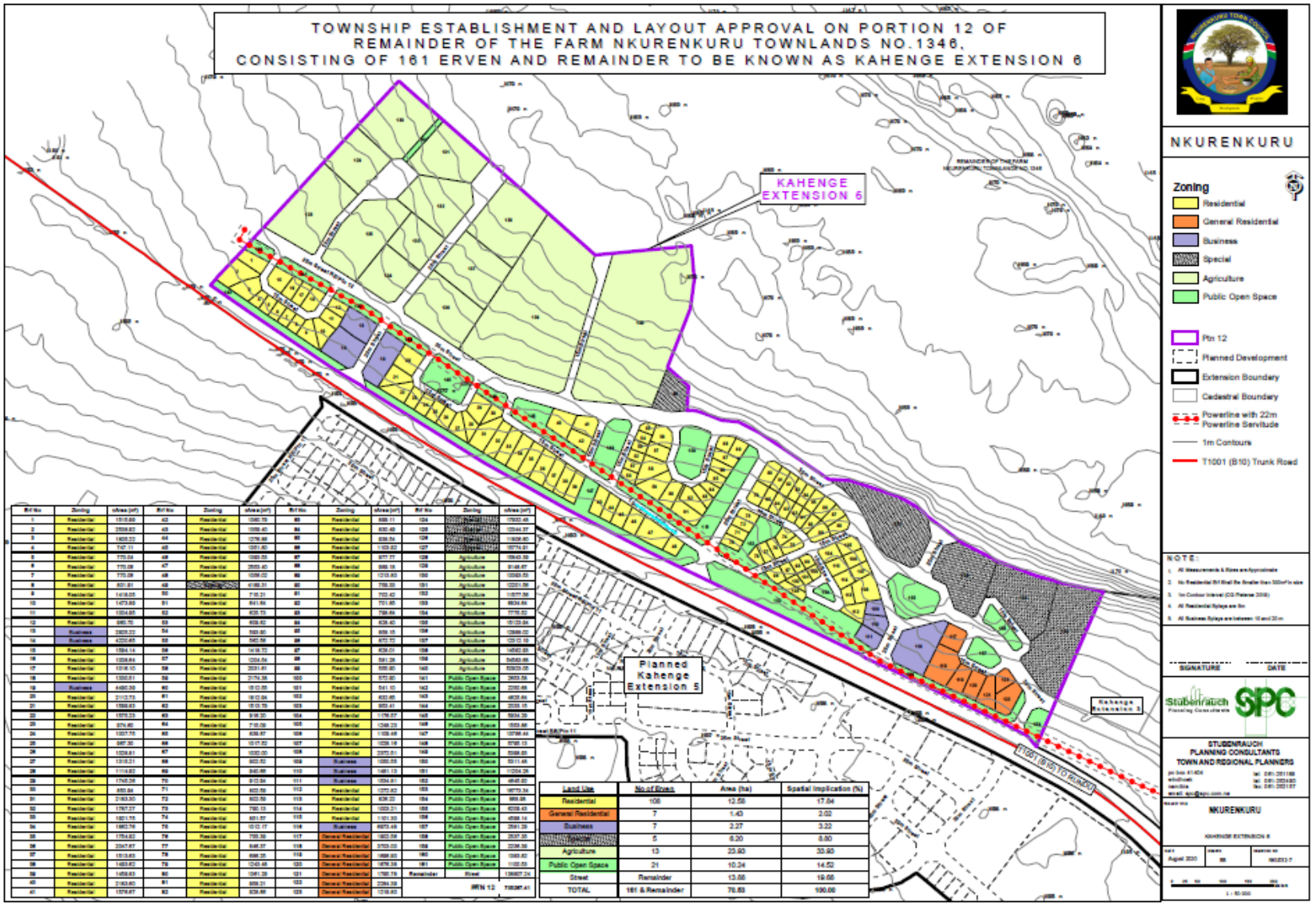

Figure 10: Layout Map of proposed Kahenge Extension 6

4.3.1 Engineering services

The site on which the township establishment is to take place has not been serviced in terms of the provision of municipal engineering infrastructure. As such the local authority needs to appoint a civil engineer for the design and construction of municipal services if and when required.

4.3.1.1 Roads and stormwater

The layout design makes use of a clearly defined road hierarchy. The street reserves range from 15 to 25m. The road reserves of the major streets are wide enough to permit the construction of four lanes (two in either direction) as well as parking and sidewalks.

Use was made of a layout design where effective stormwater management system can be handled within the internal street network of the new extension as well as within the public open spaces provided. Council it to enforce good stormwater measures well in time and in so doing prevent the development of erosion gulley's.

Existing protected trees should be identified and mapped prior to construction to ensure that they remain on site as these do contribute to the unique character of the Kahenge neighbourhood.

4.3.1.2 Water and sewage

The provision of potable water to the new area must be addressed by an engineer to be appointed by the Nkurenkuru Town Council. The existing NamWater plant providing potable water to Kahenge should have adequate capacity to cater for the immediate water demand. An engineer however needs to further investigate this matter; especially the available water pressure needs to be further investigated.

4.3.1.3 Electricity and Telephone

No electricity or telephone lines are erected within the area.

4.3.2 Kahenge Extension 7

The Nkurenkuru Town Council experienced an influx of households demanding space to erect informal housing units within proximity of the existing Kahenge urban area. It is now the intent of the Council to plan and formalize a new township extension which will have the purpose to cater for the influx of lower income households to Kahenge.

The Town Council identified an area to the west of Kahenge Extension 1 for the development of an informal area. Some 50 households have already been settled within the area on sites as pointed out and demarcated by the Council. These are to be formalized as part of the planning process.

The new extension is to be integrated into the existing urban network of Kahenge in terms of movement linkages (roads), land use and municipal service delivery.

The layout of the proposed township is depicted in **Figure 11** below.

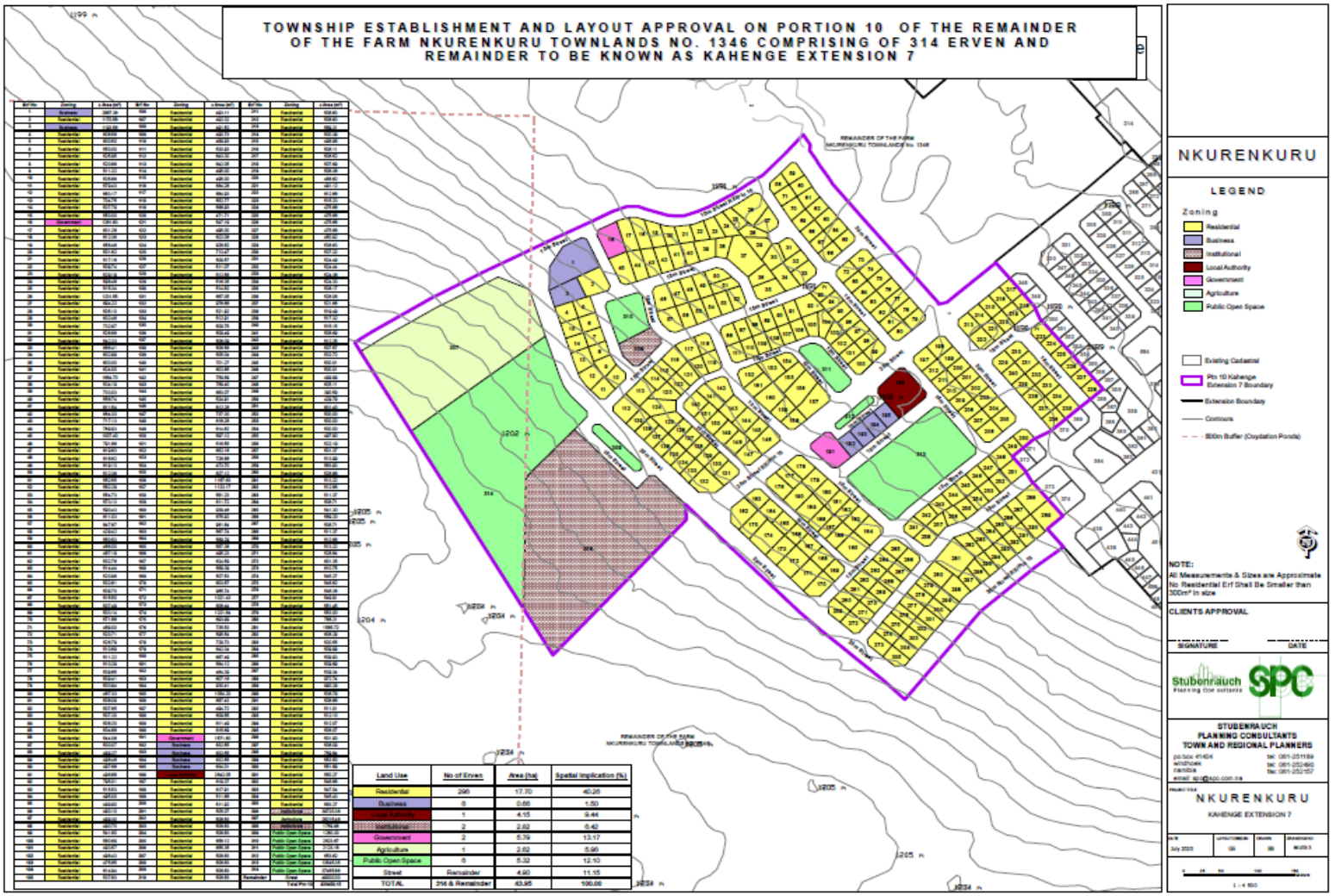

Figure 11: Layout Map of Proposed Kahenge Extension 7

4.3.3 Engineering services

The site on which the township establishment is to take place has not been serviced in terms of the provision of municipal engineering infrastructure. As such the local authority needs to appoint a civil engineer for the design and construction of municipal services if and when required.

4.3.3.1 Roads and stormwater

The layout design makes use of a clearly defined road hierarchy. The street reserves range from 15m to 30m and the road reserves are to be used to accommodate stormwater during seasonal rain occurrences.

Existing protected trees should be identified and mapped prior to construction to ensure that they remain on site as these do contribute to the unique character of the Kahenge neighbourhood.

4.3.3.2 Water and sewage

The provision of potable water to the new area must be addressed by an engineer to be appointed by the Nkurenkuru Town Council.

4.3.3.3 Electricity and Telephone

No powerlines or telephone lines are erected within the area.

5 PUBLIC PARTICIPATION PROCESS

5.1 PUBLIC PARTICIPATION REQUIREMENTS

In terms of Section 21 of the EIA Regulations a call for open consultation with all I&APs at defined stages of the EIA process is required. This entails participatory consultation with members of the public by providing an opportunity to comment on the proposed project. Public Participation has thus incorporated the requirements of Namibia's legislation, but also takes account of international guidelines, including Southern African Development Community (SADC) guidelines and the Namibian EIA Regulations. Public participation in this project has been undertaken to meet the specific requirements in accordance with the international best practice. Please see **Table 7** below for the activities undertaken as part of the public participation process. The I&APs were given time to comment from **8 June 2020 to 29 June 2020.**

Table 7: Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notices/posters in Kahenge, Nkurenkuru	See **Annexure A**
Placing advertisements in two newspapers namely the New Era and The Namibian (29 September 2020 and 6 October 2020)	See **Annexure B**
Written notice to surrounding property owners and Interested and Affected Parties via Email (29 September 2020)	See **Annexure C**
Public Meeting held at the Kahenge Tribal Hall on 9 October 2020 at 09H00	See **Annexure C**

The following comment was received during the initial notification period:

Coleen Mannheimer, Botanist – Email dated 20 October 2020

I would like to offer the following comments.

I see overall planning for Nkurenkuru has been done, and so the EIA process could become a rubber-stamping exercise from a biotic point of view. I believe that it is time for planning to take large, valuable protected trees that offer fruit and refuge to fauna (including man) into higher consideration that is presently the case country-wide.

The phrase "Where possible existing trees should be left standing within the street reserves as these do contribute to the unique character of the XYZ neighbourhood" neither says which trees or the

species involved, and does not discuss how important some of these species are, cumulative impacts (on Guibourtea coleosperma, for example), which are protected etc.

If the EIA and EMP do not involve mapping these trees individually and actually identifying which can and MUST be marked and retained during construction and development, then it is essentially a useless exercise from a botanical point of view, as can be seen from the existing town, especially the newest parts.

Thank you for offering me the opportunity to comment. I would appreciate a copy of the EIA and EMP, failing which I guess I can monitor it in the DEA website if it is functional.

The following comments were provided during the public meeting:

Table 8: Summary of comments received during public meeting

ID	Input/Question	Response
1	A request was made to please preserve large trees, especially fruit trees.	Township establishment will effectively see the removal of some trees. This is unavoidable. The layout respects larger trees by accommodating these on Public Open Spaces or then within wider street reserves. In addition a large site has been created on which the manguni tree forest is accommodated. The Council should encourage developers of new buildings to respect existing trees as far as possible prior to approving building plans.
2	Are the new shops accessible for all?	The internal street layout is designed in such way that the new commercial activity node will be easily accessible by car, bicycle or then on foot from both the planned and existing neighbourhoods. Additional business properties are provided for within easy walking distance along collector roads passing through residential neighbourhoods.
3	Are plots for Shackdweller development provided for?	Not within Extensions 5 and 6. The Council can however consider to allocate plots for the Shackdweller Federation within Extension 7 if approached by the Federation.
4	Are parks provided for within Extension 7?	Yes, there are. The layout provides for a larger sport field, neighbourhood parks and playparks. In total more than 12% of the area of Extension 7 is reserved for 'park'.
5	Are the borrow pits falling within Extension 6?	No, they are located within the flood plains to the north of Extension 6.

ID	Input/Question	Response
6	When will municipal electricity and water services be constructed for Extension 5?	This can only be done once the necessary planning approvals are obtained and after the extension was surveyed and registered. The timing of the development of municipal infrastructure however largely depends on availability of funds and as such it is not anticipated that municipal infrastructure development can take place within the next 12 to 18 months.

5.1.1 Environmental Assessment Phase 2

The second phase of the PPP involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&APs for comment. Registered and potential I&APs were informed of the availability of the DESR for public comment *via* a letter/email dated **13th November 2020**. An Executive Summary of the DESR was included in the letters to the registered I&APs. I&APs have until **27th November 2020** to submit comments or raise any issues or concerns they may have with regard to the proposed project.

6 ASSESSMENT METHODOLOGY

The purpose of this chapter is to describe the assessment methodology utilized in determining the significance of the construction and operational impacts of the proposed project, and where applicable the possible alternatives, on the biophysical and socio-economic environment.

Assessment of predicted significance of impacts for a proposed development is by its nature, inherently uncertain – environmental assessment is thus an imprecise science. To deal with such uncertainty in a comparable manner, a standardised and internationally recognised methodology has been developed. Such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in **Table 9.**

Table 9: Impact Assessment Criteria

CRITERIA	CATEGORY
Impact	Description of the expected impact
Nature Describe type of effect	**Positive**: The activity will have a social / economical / environmental benefit. **Neutral**: The activity will have no effect **Negative**: The activity will have a social / economical / environmental harmful effect
Extent Describe the scale of the impact	**Site Specific:** Expanding only as far as the activity itself (onsite) **Small:** restricted to the site's immediate environment within 1 km of the site (limited) **Medium:** Within 5 km of the site (local) **Large:** Beyond 5 km of the site (regional)
Duration Predicts the lifetime of the impact.	**Temporary:** < 1 year (not including construction) **Short-term:** 1 – 5 years **Medium term:** 5 – 15 years **Long-term:** >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) **Permanent:** Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
Intensity Describe the magnitude (scale/size) of the Impact	**Zero:** Social and/or natural functions and/ or processes remain unaltered **Very low:** Affects the environment in such a way that natural and/or social functions/processes are not affected **Low:** Natural and/or social functions/processes are slightly altered

CRITERIA	CATEGORY
	Medium: Natural and/or social functions/processes are notably altered in a modified way **High:** Natural and/or social functions/processes are severely altered and may temporarily or permanently cease
Probability of occurrence Describe the probability of the Impact actually occurring	**Improbable:** Not at all likely **Probable:** Distinctive possibility **Highly probable:** Most likely to happen **Definite:** Impact will occur regardless of any prevention measures
Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge	**Unsure/Low:** Little confidence regarding information available (<40%) **Probable/Med:** Moderate confidence regarding information available (40-80%) **Definite/High:** Great confidence regarding information available (>80%)
Significance Rating The impact on each component is determined by a combination of the above criteria.	**Neutral:** A potential concern which was found to have no impact when evaluated **Very low:** Impacts will be site specific and temporary with no mitigation necessary. **Low:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures **Medium:** Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures. **High:** Impacts have a high magnitude and will be experienced regionally for at least the life span of the development or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.

*NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.

For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision as to which combination of alternatives and mitigation measures to apply lies with the proponent, and their acceptance and approval ultimately with the relevant environmental authority.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e. the character and identity of the receptor of the impact.

6.1 MITIGATION MEASURES

There is a mitigation hierarchy of actions which can be undertaken to respond to any proposed project or activity (See **Figure 12** below). These cover avoidance, minimization, restoration and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are included in the proposed activity or project. If negative impacts occur then the hierarchy indicates the following steps.

Figure 12: Mitigation Hierarchy

Impact avoidance: This step is most effective when applied at an early stage of project planning. It can be achieved by:

- not undertaking certain projects or elements that could result in adverse impacts;
- avoiding areas that are environmentally sensitive; and
- putting in place preventative measures to stop adverse impacts from occurring.

Impact minimization: This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- scaling down or relocating the proposal;
- redesigning elements of the project; and
- taking supplementary measures to manage the impacts.

Restoration: This step is taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Restoration tries to return an area to the original ecosystem that occurred before impacts. Restoration is frequently needed towards the end of a project's life-cycle but may be possible in some areas during operation.

Impact compensation: This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- rehabilitation of the affected site or environment, for example, by habitat enhancement;
- restoration of the affected site or environment to its previous state or better; and
- replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

7 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES

7.1 INTRODUCTION

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 4. These include potential impacts, which may arise during the operation of the proposed development (i.e. long-term impacts) as well as the potential construction related impacts (i.e. short to medium term). The assessment of potential impacts will help to inform and confirm the selection of the preferred layouts to be submitted to MEFT: DEA for consideration. In turn, MEFT: DEA's decision on the environmental acceptability of the proposed project and the setting of conditions of authorisation (should the project be authorised) will be informed by this chapter, amongst other information, contained in this EA Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with potential mitigation measures recommended. Finally, comment is provided on the potential cumulative impacts which could result should this development, and others like it in the area, be approved.

7.2 PLANNING AND DESIGN PHASE IMPACTS

During the planning and design phase consideration should be given on aspects such as impacts of traffic and existing municipal infrastructure.

7.2.1 Traffic Impacts

The intended development may have an impact on traffic in the subject area as the site is currently undeveloped. Once the proposed site is developed traffic in the area is expected to increase. The layout makes provision for the development of a clearly defined road hierarchy which is expected to accommodate the increase in traffic. Street reserves which range between 15m and 30 m are provided for within the development. With mitigation traffic impacts are expected to be of low significance.

7.2.2 Impacts on Existing Municipal Infrastructure

The site on which the township establishment is to take place has not been serviced in terms of the provision of municipal engineering infrastructure. Once the area become connected to the municipal engineering services, these services will experience an increase in demand and pressure. As such it is

essential that the local authority appoints a civil engineer for the design and construction of municipal services if and when required. The engineer is to investigate the required demand for water, electricity and sewage of the proposed townships so as to ensure that the services wil be sufficient to accommodate the increased demand. With mitigation the impact is expected to be of low significance.

7.2.3 Flooding

The subject site is located within an area that may experience flooding during periods of rain. Storm water management on site will ensure that the impacts of flooding are reduced on site. The impact is expected to be of medium-low significance with the implementation of mitigation measures.

7.3 CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

The construction phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the construction phase. These impacts are inherently temporary in duration but may have longer lasting effects.

7.3.1 Flora and Fauna Impacts (Biodiversity)

As the project site is mostly undeveloped with large trees found on site. During site establishment the proposed township establishments are likely to impact the trees located on each site. It is essential that the protected trees located on site be preserved as they provide food (e.g. fruits) and refuge to fauna and people within the area. A such trees protected under the Forestry Act 12 of 2001 should be protected within the development. These trees may not be removed from site without a valid permit from the MEFT. The impact on flora is expected to be of high significance should no mitigation measures be implemented. With mitigation the impact is expected to be of low significance.

As there are no significant fauna expected to be present on site, it is anticipated that the proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would have localised negative implications on the environment and associated fauna should the proposed mitigation measures as outlined in the EMP be enforced.

7.3.2 Surface and Ground Water Impacts

Surface and groundwater impacts may be encountered during the construction and operation phase, especially if development takes place within the rainy season. The risk of contaminating such water sources can be increased by accidental spillage of oils and fuels and any other equipment used during construction. This risk is minimised by the fact that the construction phase will be a short-term activity. With mitigation the impact is expected to be of low significance.

7.3.3 Soil Erosion Impacts

Given the characteristics of the proposed site, soil erosion is likely to be encountered especially if construction will take place during the rainy season, the removal of the sparse vegetation will render the soil vulnerable to erosion as they also serve the purpose of keeping the soils compacted. With mitigation the impact is expected to be of low significance.

7.4 CONSTRUCTION PHASE IMPACTS ON THE SOCIO-EONOMIC ENVIRONMENT

7.4.1 Heritage impacts

No archaeological and heritage resources are expected to be found on the site. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds. The impact is expected to be negligible.

7.4.2 Health, Safety and Security Impacts

Working conditions on site need to ensure that the health and safety of construction workers are ensured at all times. The use of local labour during construction is strongly encouraged to reduce the need for migrant workforce. Health and Safety requirements need to comply with the Labour Act no. 11 of 2007 and national health and safety regulations during construction. With mitigation the impact is expected to be of low significance.

7.4.3 Traffic Impacts

Traffic is expected to increase during the construction phase of the project in areas where construction will take place. A number of trucks and other heavy machinery will be required to deliver, handle and position construction materials as well as to remove spoil material. Not only will the increase in traffic result in associated noise impacts, it will also impact on the roads in the area. With mitigation the impact is expected to be of low significance.

7.4.4 Noise Impacts

Construction may result in associated noise impacts. These noise impacts will mainly be associated with construction machinery and construction vehicles. The impact is however limited mainly to the construction period only. With mitigation the impact is expected to be of low significance.

7.4.5 Dust and Emission Impacts

Excavation and stockpiles during the construction phase could result in dust impacts, if not managed correctly. Dust could impact negatively on the health of the nearby community if mitigation measures are not implemented. Dust impacts are primarily associated with the construction phase. With mitigation the impact is expected to be of low significance.

7.4.6 Municipal Services

The construction phase will result in additional people on-site, who will require provision of the following services:

- Potable water for domestic (ablution and drinking) and construction purposes.
- Temporary toilets during the construction phase.
- Solid waste management (domestic and construction waste).

These services if not managed well are likely to create an opportunity for water wastage; litter; solid and human waste pollution. With mitigation the impact is expected to be of low significance.

7.4.7 Storage and Utilisation of Hazardous Substances

Hazardous substances are regarded by the Hazardous Substance Ordinance (No. 14 of 1974) as those substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. During the construction period, the use and storage of these types of hazardous substances, such as shutter oil, curing compounds, types of solvents, primers and adhesives and diesel, on-site could have negative impacts on the surrounding environment if these substances spill and enter the environment. With mitigation the impact is expected to be of low significance.

7.5 OPERATIONAL PHASE IMPACTS

The operational phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the operational phase of the proposed project and are inherently long-term in duration.

7.5.1 Visual and Sense of Place Impacts

There may be a change in visual characteristics of the site particularly a the proposed sites are currently undeveloped. The extent of this disturbance will depend on how highly the interested and affected parties valued the initial aesthetic quality of the site. The intended activities for the proposed

site may alter the sense of place for the existing community and property owners situated in close proximity to the site, as well as the residents of Nkurenkuru who frequent the site.

7.5.2 Noise Impacts

The operational activities may result in associated noise impacts, depending on the exact type of activities taking place on the properties. However due to the nature of the land uses proposed for the subject erven it is not expected that the noise levels will be significant if managed well.

7.5.3 Emission Impacts

The air quality in the area is considered to be fairly good. Additional emissions are not expected due to the land uses that are intended for the site. With mitigation the impact is expected to be of low significance.

7.5.4 Social Impacts

From a social perspective, the development will provide for the establishment of three new townships which will offer residents the opportunity to acquire residential property. Furthermore, the land uses provided for within the proposed townships will offer economic and tourism opportunities to local business people in the town or from outside investors. The local people of Nkurenkuru are further expected to benefit from the employment opportunities that may be offered during construction. The social impact is expected to be positive and of medium significance.

7.6 CUMULATIVE IMPACTS

The cumulative impact of the proposed developments in regard to the degradation of the project area is very difficult to rate. If all proposed mitigation measures are however in place to minimise the overall impacts then the cumulative impact can be expected to be rated as ***Medium-Low (negative)*** for the proposed developments.

7.1 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is contained in **Annexure E** of this report. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the construction and decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

7.2 SUMMARY OF POTENTIAL IMPACTS

A summary of all the potential impacts from the proposed project assessed above is included in **Table 10. Table 11,**

Table *12* and **Table 13** provide a summary of the mitigation measures proposed for the impacts. While some difference in magnitude of the potential impacts would result from the proposed alternatives this difference was not considered to be significant for any of the potential impacts. As such, the table below applies to all proposed alternatives.

Table 10: Summary of the significance of the potential impacts

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
PLANNING AND DESIGN PHASE										
1. Traffic Impacts	Nkurenkuru	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
2. Existing Municipal Services	Nkurenkuru	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
3. Stormwater and Flooding	Nkurenkuru	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Medium term	Medium-Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
CONSTRUCTION PHASE										

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
3. Biodiversity (Fauna and Flora)	Nkurenkuru	No mitigation	Local	Medium-Low	Short term	High	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
4. Surface & ground water	Nkurenkuru	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
5. Soil erosion	Nkurenkuru	No mitigation	Local	Medium	Short term	Medium – low	Probable	Certain	Reversible	Medium – low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
6. Heritage	Nkurenkuru	No mitigation	Local	Very low	Short term	Very low	Probable	Certain	Irreversible	Very low(-ve)
		Mitigation	Local	Negligible	Short term	Negligible	Probable	Certain	Irreversible	Negligible (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
7. Health, safety and security	Nkurenkuru	No mitigation	Local	Medium-Low	Short term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-ve)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
8. Traffic impacts	Nkurenkuru	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
9. Noise impacts	Nkurenkuru	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
10. Emissions impacts	Nkurenkuru	No mitigation	Local	Medium	Short term	Low	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	Very Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
11. Municipal services	Nkurenkuru	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low (-ve)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
12. Waste	Nkurenkuru	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
13. Hazardous Substances	Nkurenkuru	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
OPERATIONAL PHASE										
1. Surface & ground water	Nkurenkuru	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	Very-Low (-ve)
	No go	No mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
2. Visual & sense of place	Nkurenkuru	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
3. Noise	Nkurenkuru	No mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
4. Emissions	Nkurenkuru	No mitigation	Local	Medium-Low	Medium term	Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	Very Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
5. Social impact	Nkurenkuru	No mitigation	Local	High	Long term	Medium (+)	Probable	Probable	Reversible	High (+)
		Mitigation	Local	High	Long term	Medium (+)	Probable	Probable	Reversible	High (+)
	No go	No mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	Neutral
		Mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	Neutral

Table 11: Proposed mitigation measures for the planning and design phase

PLANNING AND DESIGN PHASE IMPACTS	
Impact	**Mitigation Measures**
Existing Service Infrastructure	• Water saving mechanisms should be considered for incorporation within the developments in order to further reduce water demands. • Re-use of treated wastewater should be considered wherever possible to reduce the consumption of potable water.
Stormwater Management and Flooding	• Incorporate the local depressions and areas inundated by flood waters into open spaces. • Do not construct structures within the flood prone areas which blocks off the natural flow of water. • Appoint professional engineers to develop a detailed storm water management design as part of the infrastructure service provision of the developments.

Table 12: Proposed mitigation measures for the construction phase

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
Flora and Fauna	• Adapt the proposed developments to the local environment – e.g. small adjustments to the site layout could avoid potential features such as water bodies and vegetation. • Prevent the destruction of protected and endemic plant species. • Prevent contractors from collecting wood, veld food, etc. during the construction phase. • 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. • The plants that are to be kept should be clearly marked with “danger tape” to prevent accidental removal. • Regular inspection of the marking tool should be carried out.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• The very important plants should be "camped off" to prevent the unintended removal or damage to these trees. • Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species. • Transplant removed plants where possible, or plant new plants in lieu of those that have been removed. • Prevent the introduction of potentially invasive alien ornamental plant species such as; *Lantana, Opuntia, Prosopis, Tecoma*, etc.; as part of the landscaping as these species could infest the area further over time.
Surface and Ground Water Impacts	• It is recommended that construction takes place outside of the rainy season in order to limit flooding on site and surface water pollution. • No dumping of waste products of any kind in or in close proximity to surface water bodies. • Heavy construction vehicles should be kept out of any surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks. • Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with. • Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles. • Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies. • All materials on the construction site should be properly stored. • Disposal of waste from the sites should be properly managed and taken to the designated landfill site. • Construction workers should be given ablution facilities at the construction sites that are located at least **30 m** away from any surface water and regularly serviced.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• 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 polluted waters.
Soil Erosion	• It is recommended that construction takes place outside of the rainy season in order to limit potential flooding and the runoff of loose soil causing further erosion. • Appropriate erosion control structures must be put in place where soil may be prone to erosion. • Checks must be carried out at regular intervals to identify areas where erosion is occurring. • Appropriate remedial actions are to be undertaken wherever erosion is evident.
Heritage	• The project management should be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds. • In the event of such finds, construction must stop, and the project management or contractors should notify the National Heritage Council of Namibia immediately.
Health, Safety and Security	• Construction personnel should not overnight at the site, except the security personnel. • Ensure that all construction personnel are properly trained depending on the nature of their work. • Provide for a first aid kit and a properly trained person to apply first aid when necessary. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases as described above. • Provide free condoms in the workplace and to local community throughout the construction period and promote their usage. • Facilitate access to Antiretroviral (ARV) medication. • Encourage HIV counselling and testing. • Encourage Voluntary Medical Male Circumcision (VMMC). • Provide awareness on the prevention of mother to child HIV Transmission. • Restrict unauthorised access to the site and implement access control measures.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• Clearly demarcate the construction site boundaries along with signage of “no unauthorised access”. • Clearly demarcate dangerous areas and no-go areas on site. • Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures. • The contractor must comply with all applicable occupational health and safety requirements. • The workforce should be provided with all necessary Personal Protective Equipment where appropriate.
Traffic	• Limit and control the number of access points to the site. • Ensure that road junctions have good sightlines. • Construction vehicles’ need to be in a road worthy condition and maintained throughout the construction phase. • Transport the materials in the least number of trips as possible. • Adhere to the speed limit. • Implement traffic control measures where necessary.
Noise	• No amplified music should be allowed on site. • Inform immediate neighbours of construction activities to commence and provide for continuous communication between the neighbours and contractor. • Limit construction times to acceptable daylight hours. • Install technology such as silencers on construction machinery. • Do not allow the use of horns as a general communication tool but use it only where necessary as a safety measure.
Dust and Emission	• It is recommended that dust suppressants such as Dustex be applied to all the construction clearing activities to ensure at least 50% control efficiency on all the unpaved roads and reduce water usage. • Construction vehicles to only use designated roads.

CONSTRUCTION PHASE IMPACTS	
Impact	**Mitigation Measures**
	• During high wind conditions the contractor must make the decision to cease works until the wind has calmed down. • Cover any stockpiles with plastic to minimise windblown dust. • Provide workers with dust masks.
Waste	• It is recommended that waste from the temporary toilets be disposed of at an approved Wastewater Treatment Works. • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • Solid waste will be collected and disposed of at an appropriate local land fill or an alternative approved site, in consultation with the local authority.
Hazardous Substances	• Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater. • Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant.

Table 13: Proposed mitigation measures for the operational phase

OPERATIONAL PHASE IMPACTS	
Impact	**Mitigation Measures**
Surface and Ground Water	• A no-go buffer area of at least 15 m should be allocated to any water bodies in the area. • No dumping of waste products of any kind in or in close proximity to any surface water bodies. • Contaminated runoff from the various operational activities should be prevented from entering any surface or ground water bodies. • Ensure that surface water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Disposal of waste from the various activities should be properly managed.
Visual and Sense of Place	• It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape. • Natural colours and building materials such as wood and stone should be incorporated as well as the use of indigenous vegetation in order to help beautify the development. • 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).
Noise	• Do not allow commercial activities that generate excessive noise levels. • Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits. • No activity having a potential noise impact should be allowed after 18:00 hours if possible.
Emissions	• Consider tarring of the internal road network. • Manage activities that generate emissions. • Use vapour recovery equipment and techniques to avoid air pollution and minimise fuel loss. • Train fuel area staff in vapour recovery procedures.
Social Impacts	No specific mitigation measures are required, only that the local community be consulted in terms of possible job creation opportunities and must be given first priority if unspecialised job vacancies are available.

8 CONCLUSION

The purpose of this Chapter is to briefly summarise and conclude the DESR and describe the way forward.

8.1 CONSTRUCTION PHASE IMPACTS

With reference to **Table 10**, the most significant impact is the impact on flora which was deemed to have a ***High (negative)*** significance impact on the environment. With mitigation the impact can be reduced to a ***Medium (negative)*** significance. The remaining construction impacts were assessed to a ***Medium to Low (negative)*** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP**,** the significance of the construction phase impacts is likely to be reduced to a ***Low (negative)***.

8.2 OPERATIONAL PHASE

The most significant operational phase impact ***Medium (positive)*** is the social impact. This is as a result of the potential job and economic opportunities during operation as well the increased development within the area.

8.3 LEVEL OF CONFIDENCE IN ASSESSMENT

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this FESR is adequate to allow MEFT: DEA to be able to determine the environmental acceptability of the proposed project.

It is acknowledged that the project details will evolve during the detailed design and construction phases. However, these are unlikely to change the overall environmental acceptability of the proposed project and any significant deviation from what was assessed in this FESR should be subject to further assessment. If this was to occur, an amendment to the Environmental Authorisation may be required in which case the prescribed process would be followed.

8.4 MITIGATION MEASURES

With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction and operational phase impacts is likely to be reduced to a ***Low (negative)***. **It is further extremely important to include an Environmental Control Officer (ECO) on site during the construction phase of the proposed project to ensure that all the mitigation measures discussed in this report and the EMP are enforced.**

It is noted that where appropriate, these mitigation measures and any others identified by MEFT: DEA could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEA issue a positive Environmental Authorisation.

8.5 OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION

Regulation 15(j) of the EMA, requires *that the EAP include an opinion as to whether the listed activity must be authorised and if the opinion is that it must be authorised, any condition that must be made in respect of that authorisation*.

It is recommended that this project be authorised because should the development not proceed the subject area will remain vacant and undeveloped. Potential job and economic opportunities may be available to the local people of Nkurenkuru during construction and operation. The significance of the social impact was therefore deemed to be ***Medium (positive)***.

The "no go" alternative on the other hand was deemed to have a ***High (negative)*** impact, as all the social benefits resulting from the development would not be realised.

The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP. If authorised, the implementation of an EMP should be included as a condition of approval.

8.6 WAY FORWARD

The FESR is herewith submitted to MEFT: DEA for consideration and decision making. If MEFT: DEA approves or requests additional information / studies all registered I&APs and stakeholders will be kept informed of progress throughout the assessment process.

9 REFERENCES

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