

Environmental Assessment Scoping Report for

March 2025

*LAYOUT APPROVAL AND
TOWNSHIP ESTABLISHMENT OF
OKANGWENA PROPER TO
OKANGWENA EXTENSION 2,
OSHANA REGION.*

APP - 005562

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PROJECT DETAILS

Title	Environmental Scoping Report for the: Layout Approval and Township Establishment of Okangwena Proper to Okangwena Extension 2, Oshana Region		
Report Status	Final		
SPC Reference	OND/013		
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EXECUTIVE SUMMARY

Introduction

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

- (a) Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;**
- (b) Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;**
- (c) Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;**
- (d) Subdivision of “Consolidated Portion X” into Portion A, B and the Remainder;**
- (e) Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;**
- (f) Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;**
- (g) Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and**
Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.

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 and Forestry (MEFT: DEAF).

Project Description

Due to the rapid development of informal structure in the area locally known as Okangwena, the number of households within the area has mushroomed and is continuing to increase. As such, the Ondangwa Town Council wishes to replan and formalize the existing informal settlement locally known as Okangwena into three registered townships in order to reduce the growth of informal structures within this area.

The formalization of Okangwena into three established townships is to be carried out by undertaking the following town planning statutory procedure:

- (a) Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;**
- (b) Rezoning of Erf 272 from “Residential” to “Undetermined”;**
- (c) Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;**

- (d) Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;
- (e) Subdivision of “Consolidated Portion X” into Portion A, B and the Remainder;
- (f) Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;
- (g) Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;
- (h) Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and
- (i) Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.

Public Participation

Communication with Interested and Affected Parties (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 **22 November 2024**;
- Notices were placed in the New Era newspapers and the Namibian newspapers dated **22 November 2024 and 29 November 2024**, briefly explaining the activity and its locality, inviting members of the public to register as I&APs (**Appendix B**); and
- A notice was fixed at the project site (see **Appendix A**);
- Two Public meetings were held on the **6th & 7th of December 2024** on the site in Ondangwa

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 **10 February 2025**). The comment period will remain open until the final scoping report is submitted to MEFT.

The Draft Scoping Report was circulated from the **28 February 2025 until the 14 March 2025** so that the public could review and comment on it. The overall commentary received from the public on the draft report was documented in the comments and responses report document of this report.

Conclusions and Recommendations

With reference to **Table 13**, none of the negative construction phase impacts were deemed to have a high significant impact on the environment. The 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)**.

With reference to **Table 1**, none of the negative operational phase impacts were deemed to have a high significance impact on the environment. The operational impacts were assessed to a **Medium (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)**.

It is recommended that this project be authorised because should the development not proceed the subject area will remain in its current state. The local community is expected to benefit from the development as a result of the potential job opportunities during construction as well as the increased development within the area. Furthermore, the community of Ondangwa are further expected to benefit from the new erven which will make available much needed residential erven. 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 the 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: DEAF	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs and Forestry
MURD	Ministry of Urban and Rural Development
MWTC	Ministry of Works Transport and Communication
NAMPAB	Namibia Planning Advisory Board
NPC	Namibia Planning Commission
POS	Public Open Space
PPP	Public Participation Process
SADC	Southern African Development Community
SME	Small Medium Enterprise
SPC	Stubenrauch Planning Consultants
USAID	United States Agency for International Development
VMMC	Voluntary Medical Male Circumcision

1 INTRODUCTION

1.1 PROJECT BACKGROUND

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

- Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;
- Rezoning of Erf 272 from “Residential” to “Undetermined”;
- Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;
- Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;
- Subdivision of “Consolidated Portion X” into Portion A, B and the Remainder;
- Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;
- Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;
- Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and
- Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.

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

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
Activity 10.1 (a) Infrastructure	The construction of oil, water, gas and petrochemical and other bulk supply pipelines;	The proposed project involves the construction and operation of a truck port.

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
Activity 10.1 (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 and Forestry (MEFT: DEAF).

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

The area of Portion A, B and C of the Remainder of the Farm Ondangwa Town and Townlands No. 882 and Erf 272, Ondangwa Proper which are earmarked for the establishment of the Okangwena townships are situated along the B1 road, heading towards the town of Oniipa. The area lies between the eastern outskirts of Ondangwa Proper and the western boundary of Oniipa, directly at the border between the two towns as depicted in **Figure 1** below.

1.3 LAND USE

The area envisioned for the formalization of the Okangwena townships is built up with a mixture of both permanent and temporary structures that are utilized for mainly residential activities, for business activities or both as well as institutions. the area on which proposed Okangwena Proper to Okangwena

Extension 2 are to be established, are located on a relatively flat area, which has a slope of than 1:100. As outlined on the same map, the subject portions are not subject to seasonal flooding.

1.4 OWNERSHIP

The size zoning and ownership of the Remainder of the Farm Ondangwa Town and Townlands No. 882 and Erf 272, Ondangwa Proper are outlined in Table 1 below.

Figure 1: Zoning and Ownership

Portion No.	Zoning	Ownership	Title Deed No.
Remainder of the Farm Ondangwa Town and Townlands No. 882	Undetermined	Ondangwa Town Council	941/1991
Erf 272, Ondangwa Proper	Residential	Ondangwa Town Council	2191/1997

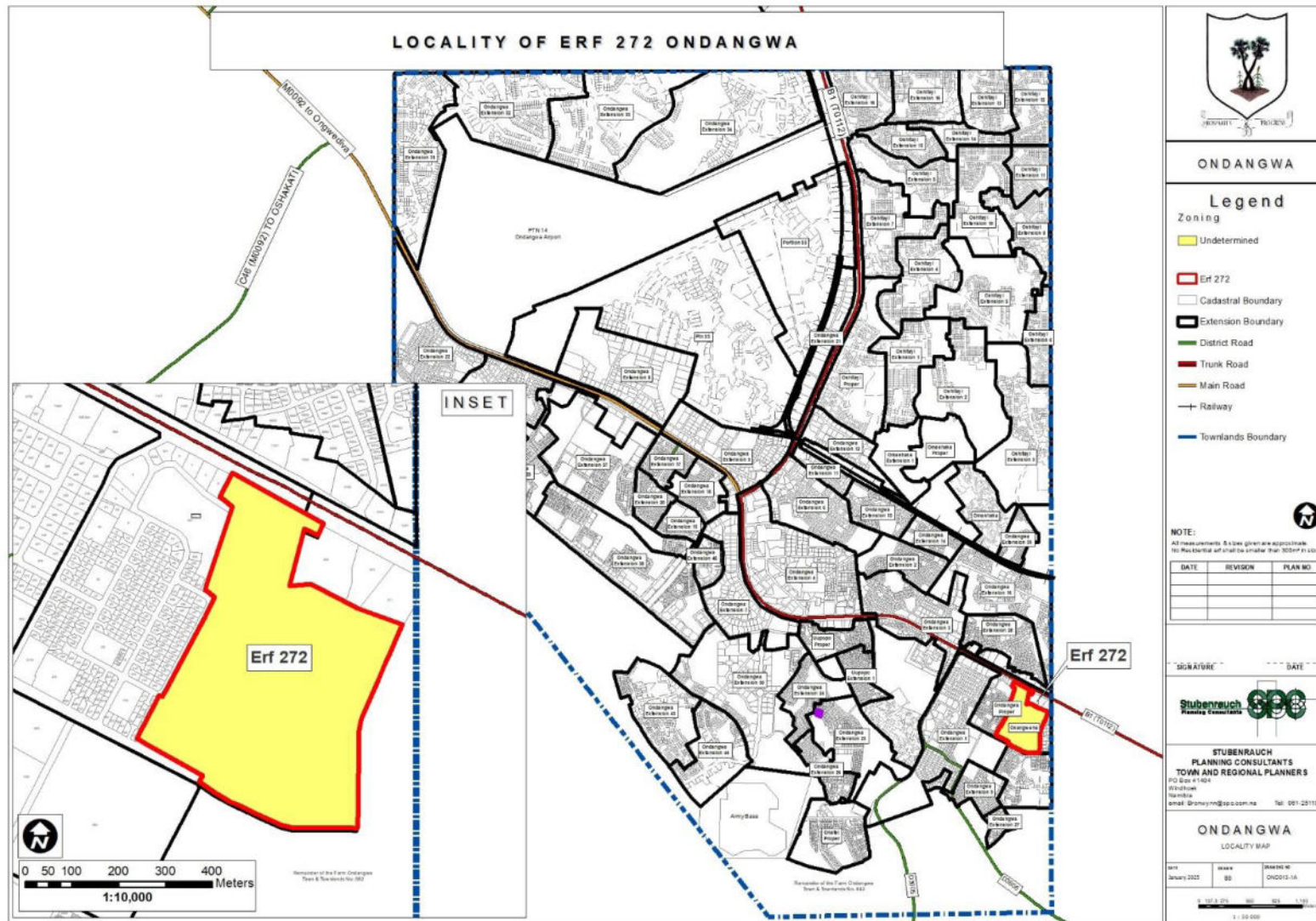


Figure 2: Locality map of Erf 272, Ondangwa

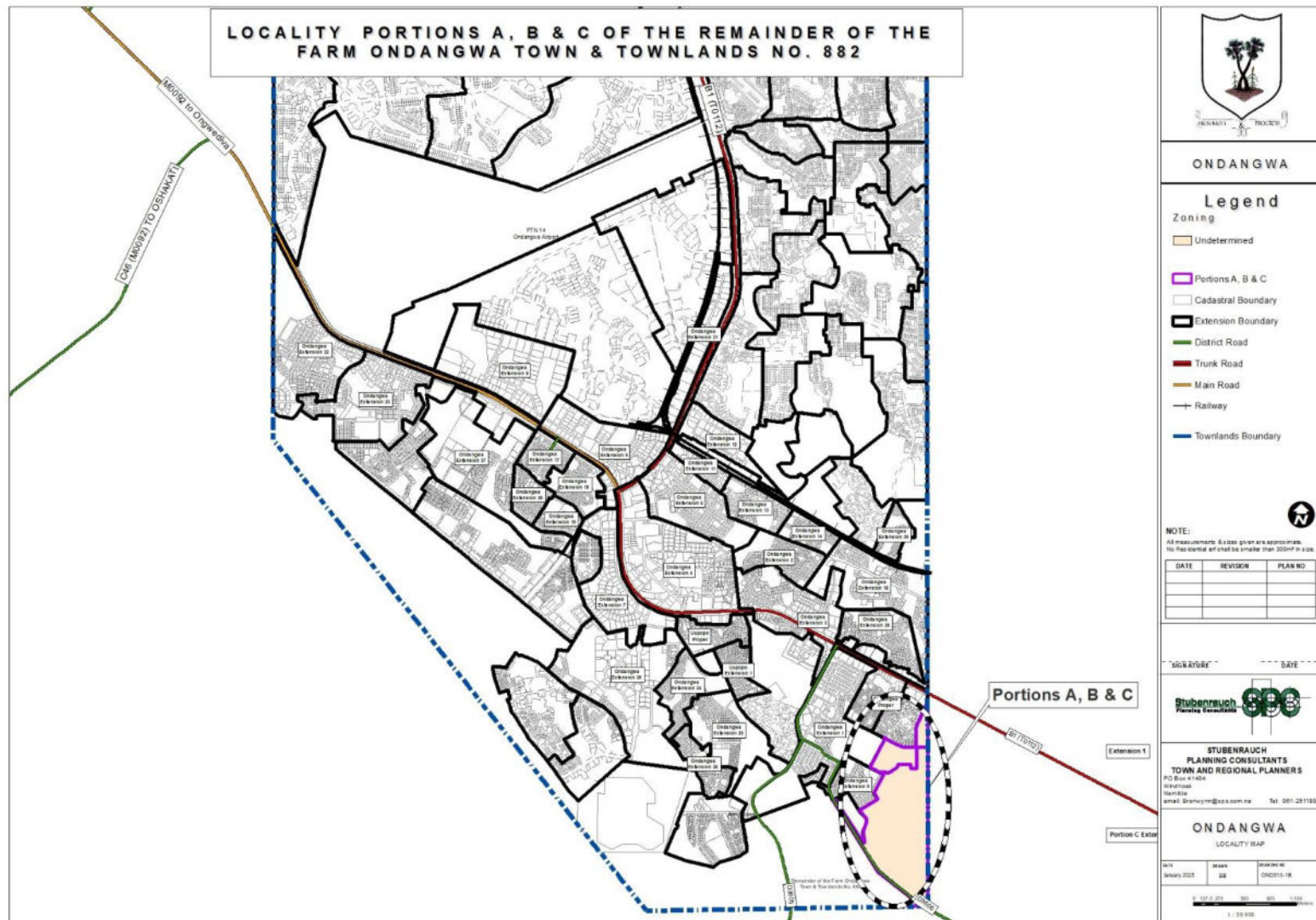


Figure 3: Locality map of Portions A, B and C of the Remainder of the Farm Ondangwa Town and Townlands No 882

1.5 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:

- **Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;**
- **Rezoning of Erf 272 from “Residential” to “Undetermined”;**
- **Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;**
- **Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;**
- **Subdivision of “Consolidated Portion X” into Portion A, B and the Remainder;**
- **Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;**
- **Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;**
- **Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and**
- **Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.**

1.6 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 Ondangwa 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.

1.7 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 manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Refer to Chapter 3
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	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
	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;	
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.	Activity 10.1 (a) Infrastructure Activity 10.1 b) Infrastructure Activity 10.2 (a) Infrastructure
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.
Urban and Regional Planning Act 5 of 2018	The Act provides to consolidate the laws relating to urban and regional planning; to provide for a legal framework for spatial planning in Namibia; to provide for principles and standards of spatial planning; to establish the urban and regional planning board; to decentralise certain matters relating to spatial planning; to provide for the preparation, approval and review of the national spatial development framework, regional structure plans and urban structure plans; to provide for the preparation, approval, review and amendment of zoning schemes; to provide for the establishment of townships; to provide for the alteration of boundaries of approved townships, to provide for the disestablishment of approved townships; to provide for the change of name of approved townships; to provide for the subdivision and consolidation of land; to provide for the alteration,	The subdivision, closure and rezoning is to be done in accordance with the act.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	suspension and deletion of conditions relating to land; and to provide for incidental matters.	
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 must 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.
Roads Ordinance 17 of 1972	<ul style="list-style-type: none"> • 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	Contractors and users of the proposed development are to comply with these legal requirements.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	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).	
Nature Conservation Ordinance no. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants must be managed within the legal confines.
Water Quality Guidelines for Drinking Water and Wastewater Treatment	Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment (see Appendix B).	These guidelines are to be applied when dealing with water and waste treatment
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and 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	Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	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. 1 of 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.	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, Part III - atmospheric pollution by smoke, Part IV - dust control, and Part V - air pollution by fumes emitted by vehicles.	The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed).

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
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.

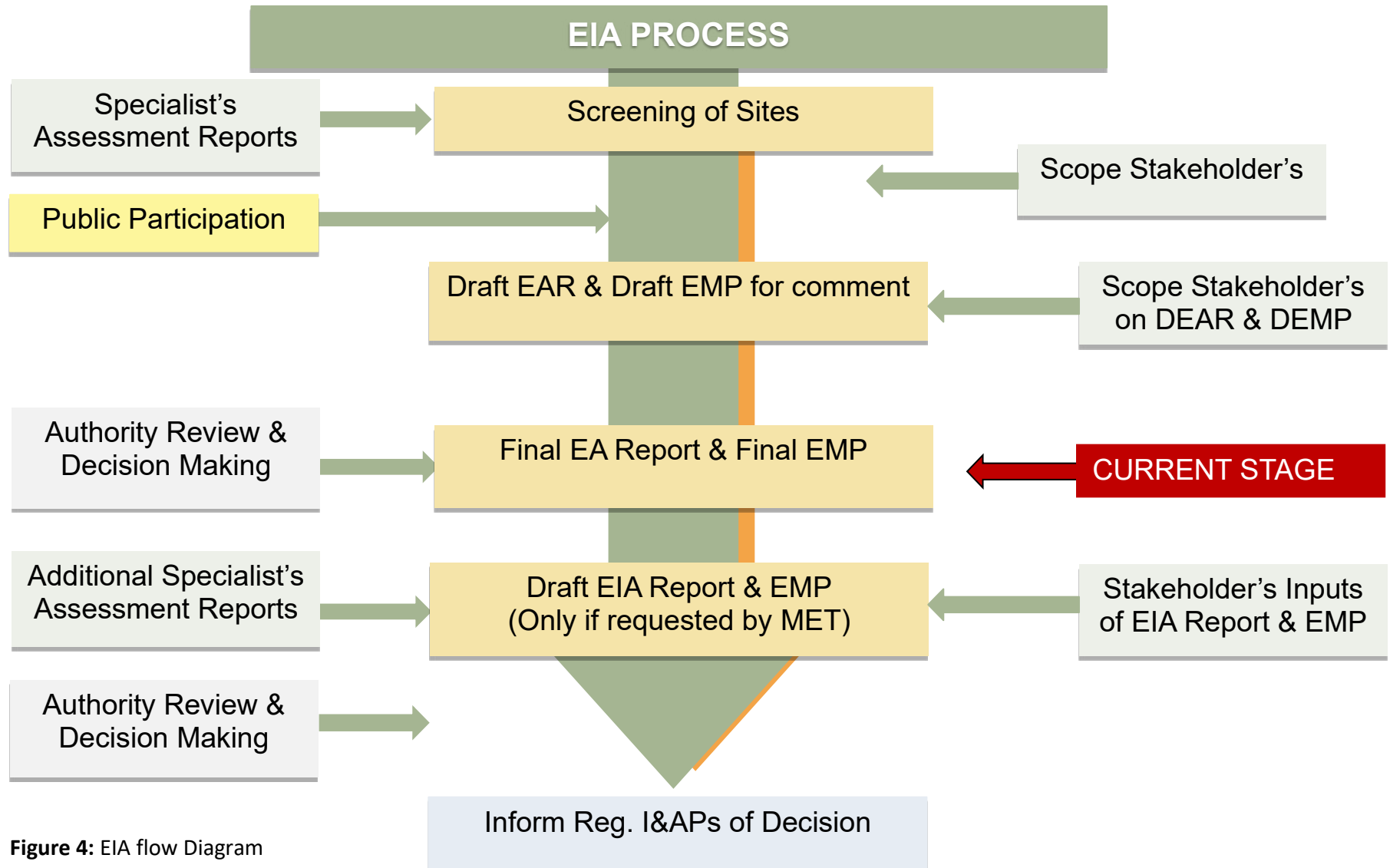


Figure 4: EIA flow Diagram

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 2023 Namibia Population and Housing Census (Namibia Statistics Agency, 2023), and presented from a local and regional perspective.

Table 4: Statistics of the Ondangwa Constituency (Namibia Statistics Agency, 2023)

OSHANA REGION	
ATTRIBUTE	INDICATOR
Population	230 801
Females	124 243
Males	106 558
Males per 100 Females	86
Literacy rate of 15 years old and above	92.0%
People above 15 years who have never attended school	5.7%
People above 15 years who are currently attending school	24.8%
People above 15 years who have left school	67.4%
Population under 5 years	29 303
Population aged 5 to 14 years	51 036
Population aged 15 to 34 years	82 000
Population aged 35 to 59 years	51 578
Population aged 60 years and above	16 884
Income from wages & Salaries	39.3%
Income from Old Age Pension	17.0%
Income from Business, Non-Farming	14.0%
Income from Farming	8.2%
ONDANGWA URBAN CONSTITUENCY	
ATTRIBUTE	INDICATOR
Population	39 466
Females	16 734
Males	14 732

3.1.2 Archaeological and Heritage Context

No archaeological and heritage sites are known to be located within the proposed development area. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds.

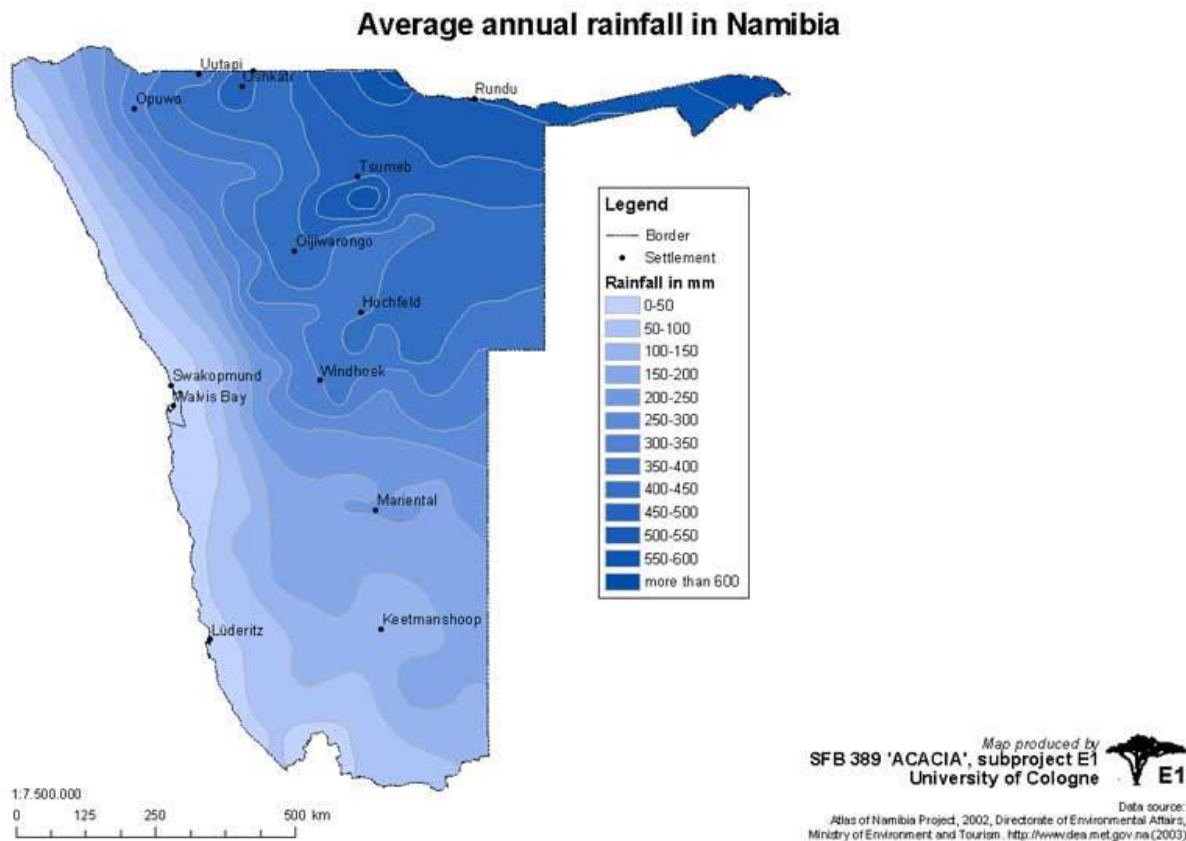


Figure 6: Average annual Rainfall (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/climate/rainfall-annual.jpg)

3.2.2 Topography, Geology and Soils

The Oshana Region forms part of the Kalahari Group Geological division depicted in pale yellow in **Figure 7** below. The dominant soils within the area are predominantly deep Kalahari and Namib sand that mostly occur in the formation of sands and other sedimentary materials, while the clay sodic sands dominate in the Oshanas (Mendelsohn *et al.*, 2002).

The slope of the subject area is generally flat, and the soil conditions and topography are suitable for the proposed development.

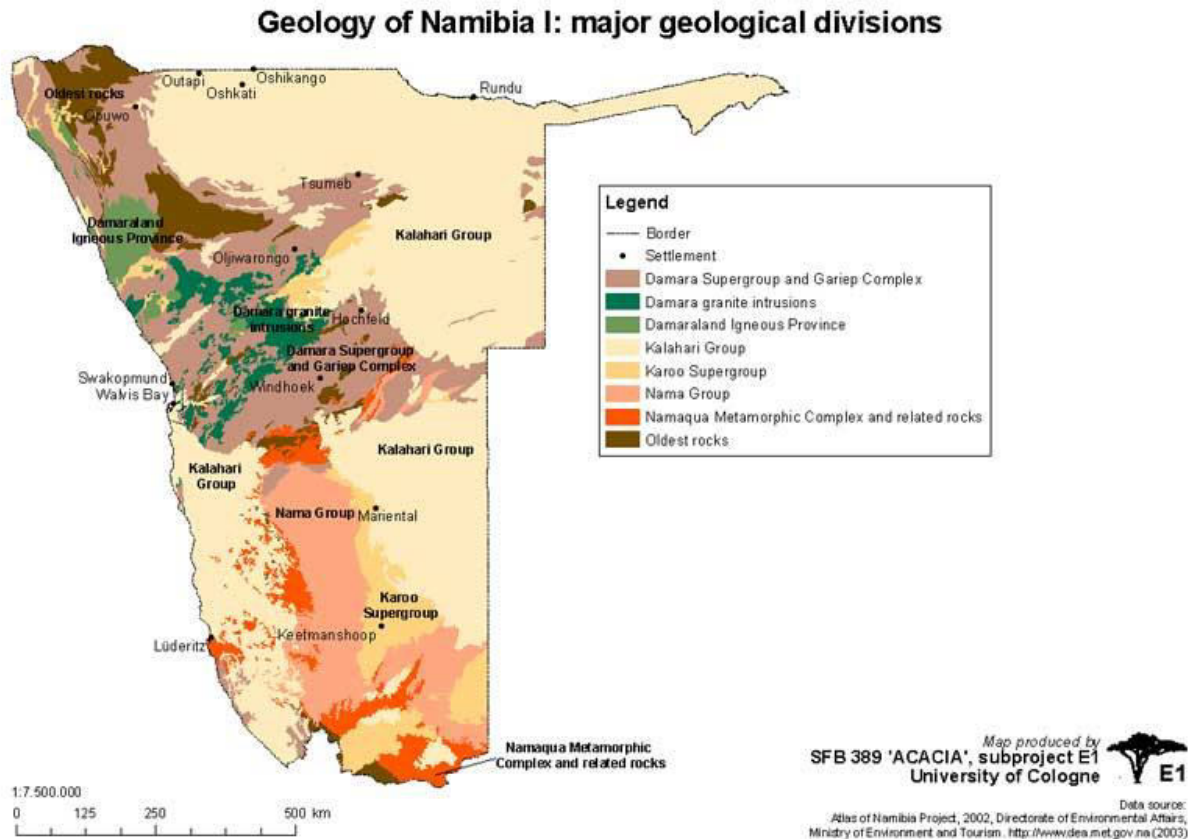


Figure 7: Geology of Namibia (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/physical/geology.jpg)

3.2.3 Hydrology and Hydrogeology

In terms of groundwater, the area falls within the Cuvelai-Etoshia groundwater basin as depicted in **Figure 8** below. The hydrogeological Cuvelai Basin comprises the Omusati, Oshana, Ohangwena, and Oshikoto Regions and parts of the Kunene Region (Ministry of Agriculture Water and Rural Development, 2011). The groundwater of the Cuvelai Basin is relatively shallow but mostly brackish or saline. All groundwater within the basin flows towards the Etosha Pan (Ministry of Agriculture Water and Rural Development, 2011).

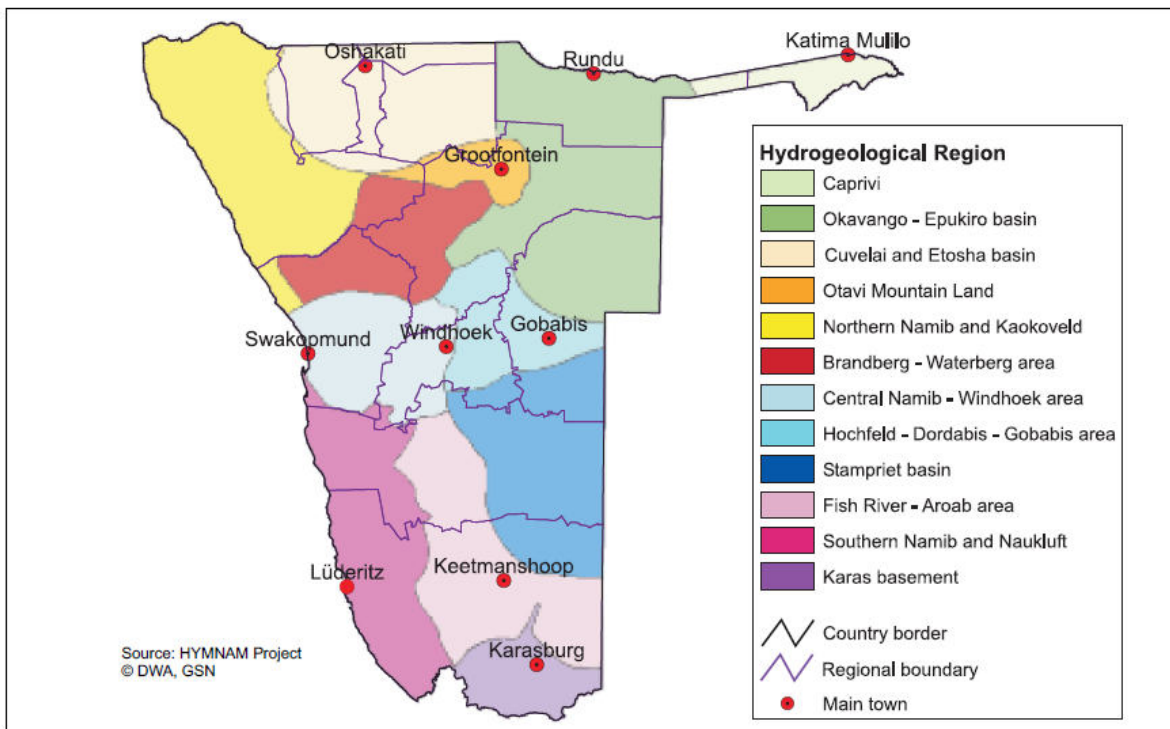


Figure 8: Groundwater basins and hydrogeological regions in Namibia

The Cuvelai Basin consists of thousands of drainage channels or oshanas which flow during the rainy season. The oshanas are “shallow, often vegetated and poorly defined, interconnected flood channels and pans through which surface water flows slowly or may form pools depending on the intensity of the floods (“efundja”)” (Ministry of Agriculture Water and Rural Development, 2011).

The Cuvelai Basin is one of the most densely populated areas in the country with most communities living in rural areas largely dependent on agriculture (Ministry of Agriculture Water and Rural Development, 2011). The villages and towns located within the Cuvelai Basin are supplied with water from the Calueque Dam, north of the Angolan border, via an extensive system of canals and pipelines. “Water stored in the Calueque Dam on the Kunene River just north of the border is pumped via a canal to the Olushandja Dam in Namibia, from where it is gravity fed via a concrete-lined canal to Oshakati” (Ministry of Agriculture Water and Rural Development, 2011).

Surface water is only available during the rainy season, people rely on other water sources during the dry season. As such groundwater is sourced in the region through dug wells and boreholes.

Most of the settlements within the Cuvelai basin experience flooding during the rainy season. Oshakati is no exception, however the developed part of the town generally is not severely affected by these seasonal flood occurrences as it is developed on higher ground than the surrounding Oshana areas (Stubenrauch Planning Consultants, 2016). This however cannot be said for the extended Townlands which experiences greater flooding challenges (Lithon Project Consultants, 2016).

Lower lying areas within town coupled with increasing run-off during flood occurrences pose a challenge for stormwater management. As such it is essential that stormwater management systems be implemented within town. Flooding occurring in Oshakati results mainly from local run-off that cannot drain away to the nearby iishana (Lithon Project Consultants, 2016).

The subject area currently features a water body which is connected to a local drainage channel, as well as an array of shrubs and trees and is located on a relatively flat terrain.

3.3 TERRESTRIAL ECOLOGY

3.3.1 Flora and Fauna

The Oshana Region falls within the broader Tree-and-Shrub Savanna Biome and forms part of the Acacia Tree-and-shrub Savanna sub-biome. The Acacia Tree-and-shrub Savanna sub-biome is characterized by large, open expanses of grasslands dotted with Acacia trees (Mendelsohn *et al.*, 2002). The trees within this biome are tallest in the east where they grow in deeper sands and become more shrub-like to the west where they grow in shallower soils.

The region falls within the Cuvelai Drainage vegetation type. Within north-central Namibia, Mopane is a very common tree species in the Cuvelai Drainage where grassy channels of oshana carry floodwater during heavy rains from the higher areas in the north of Angola (Mendelsohn & el Obeid, 2005). The indigenous trees found within the region include the Makalani Palm Trees (*Hyphaene petersiana*) and Mopane Trees (*Colophospermum mopane*). If removal of protected tree species is required a permit needs to be obtained from the local Department of Forestry prior to removal. Trees protected under the Forestry Act 12 of 2001 should be protected within the layout of the proposed development.

Most wildlife is located within the Etosha National Park and thus it is mostly animals such as cattle, donkeys and goats which are dominant within the subject area.

The proposed development is located within the urban locality of Ondangwa as such the area has already been developed and can therefore not be considered to be pristine. The natural vegetation within the area has been disturbed by human activities but does accommodate some trees scattered within the proposed sites which need to be considered in the proposed layouts of the development.

4 PROJECT DESCRIPTION

4.1 PROJECT COMPONENTS

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

- **Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;**
- **Rezoning of Erf 272 from “Residential” to “Undetermined”;**
- **Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;**
- **Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;**
- **Subdivision of “Consolidated Portion X” into Portion A, B and the Remainder;**
- **Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;**
- **Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;**
- **Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and**
- **Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.**

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 layouts alternatives were initially considered by the proponent, ultimately resulting in the final layouts. As such only the no-go alternative will be discussed below.

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 of uncontrolled informal settlement growth. Thus, the Ondangwa 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. The residents will not be able to expand their financial security, as they will be able to use these land rights to expand their business, renovate their homes, pass their homes on to their dependants in the form of inheritance, which all works towards wealth generation and economic empowerment. Thus, the no-go alternative is not considered to be the preferred option.

4.3 THE PROPOSED DEVELOPMENT

The area commonly known as Okangwena has long been a part of the informal settlement landscape in Ondangwa. Despite several past efforts to formalize this settlement, these initiatives have yet to materialize. However, the need for adequate housing and improved living conditions remains a key priority for the Ondangwa Town Council.

In response to this ongoing challenge, the Proponent (Ondangwa Town Council) has appointed Stubenrauch Planning Consultants to oversee the formalization of Okangwena. This process will establish three distinct residential neighborhoods: Okangwena Proper, Okangwena Extension 1, and Okangwena Extension 2.

The formalization of Okangwena will contribute to a structured and well-regulated urban environment, facilitating sustainable growth and development. It will introduce an organized land-use system, allowing for improved infrastructure planning, zoning, and the provision of essential services such as sanitation, clean water, and electricity. Currently, the informal status of the area presents challenges in addressing community needs, particularly in accessing basic services and securing credit for property improvements.

The benefits of formalization extend beyond the residents to the broader community and the Town Council. Legal land ownership and the recognition of existing developments will stimulate economic growth, enhance property values, and improve overall living conditions. Additionally, the process will mitigate risks associated with informal settlements, including inadequate access to services and the insecurity of land tenure, which can lead to displacement and underdevelopment.

A key aspect of the formalization strategy is the adoption of cost-effective in-situ development, which eliminates the need for large-scale demolitions and compensations. This approach streamlines the project's implementation while reducing costs for the Town Council.

To accommodate more households and preserve community ties, the development plan includes erven sizes of less than 300m², ensuring affordable housing options. This proposal aligns with Subsection 8.10.2 of the National Housing Policy (2023). The following town planning steps are required to facilitate the intended development:

- **Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272;**
- **Rezoning of Erf 272 from "Residential" to "Undetermined";**
- **Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder;**
- **Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;**
- **Subdivision of "Consolidated Portion X" into Portion A, B and the Remainder;**

- **Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;**
- **Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;**
- **Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2; and**
- **Inclusion of Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 in the next Zoning Scheme to be prepared for Ondangwa.**

4.3.1 The Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272

It is the intention of the Ondangwa Town Council to alter the boundaries of Ondangwa Proper to exclude Erf 272, that is envisioned for the formalization of Okangwena. Erf 272, Ondangwa Proper is proposed to be excluded from the township due to its boundaries overlapping onto the existing structures including both permanent and temporary buildings, some of which fall within the townlands.

This overlap might create potential planning discrepancies particularly land ownership and the formalization of the property rights. To avoid conflicts and ensure a smooth planning process, the erf will be excluded and consolidated with a portion of the townlands. This consolidation allows for the creation of new townships that respect the existing development, ensuring that no discrepancies occurs. The alteration of the township boundaries of Ondangwa as depicted in **Figure 10** below.

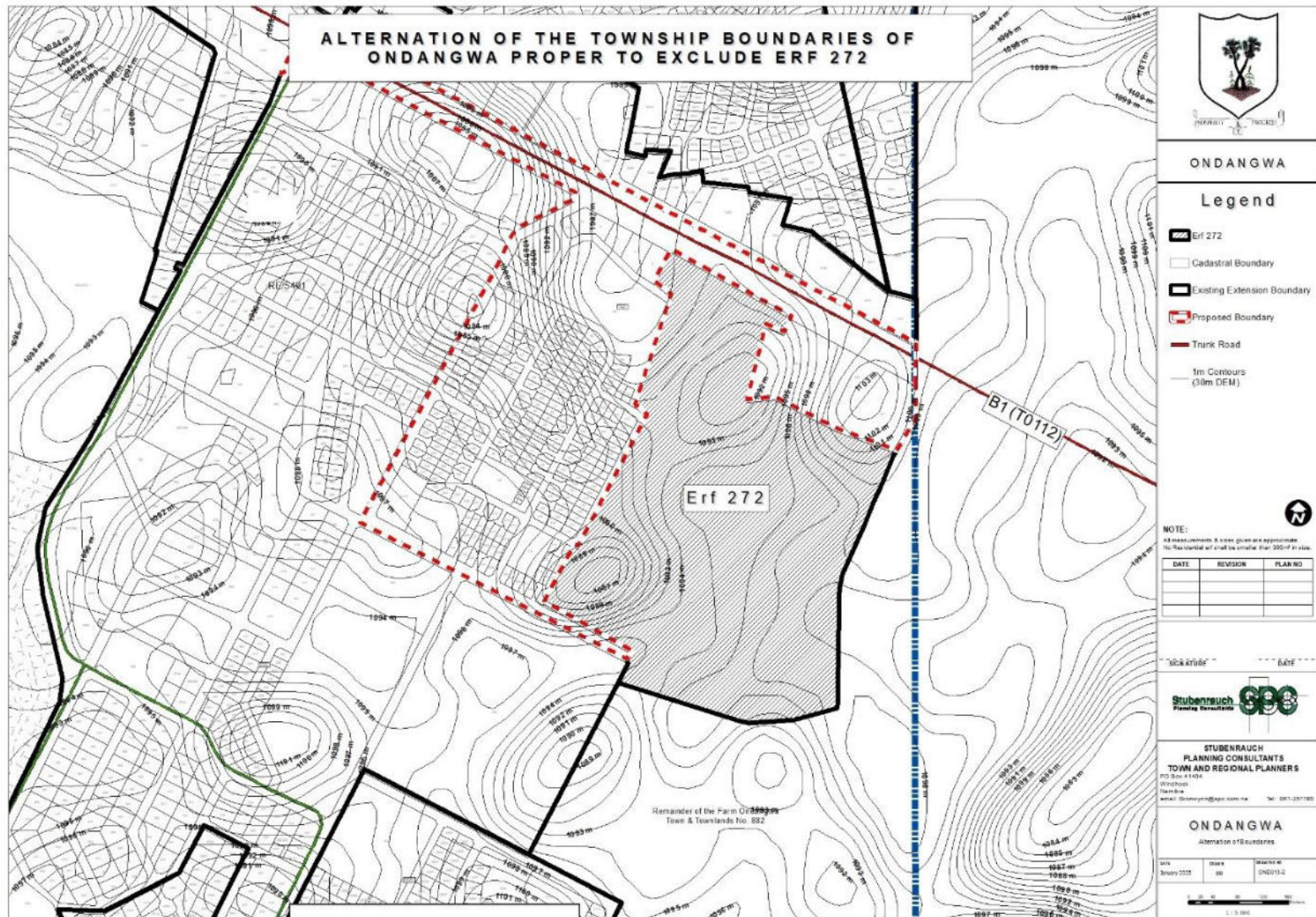


Figure 10: Alteration of the Township Boundaries of Ondangwa Proper to exclude Erf 272

4.3.2 The Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Erf A, B and the Remainder

The Remainder of Farm Ondangwa Town and Townlands No. 882 is set to be subdivided into Portion A, Portion B, and the Remainder as depicted in **Table 5** below.

Proposed Portion A currently contains structures that form part of the Okangwena formalization project. To facilitate this process, Portion A will be consolidated with Erf 272—which has been excluded from Ondangwa Proper—into a single Consolidated Portion X, designated for the establishment of the Okangwena Townships.

Proposed Portion B has been created to prevent the formation of a split remainder. This portion will be left undetermined, allowing flexibility for future township development or other potential land uses.

Proposed Portion A will maintain its “Undetermined” zoning to accommodate the formalization process.

This subdivision of the Remainder of Farm Ondangwa Town and Townlands No. 882 aims to support structured urban development while ensuring efficient land use planning for future growth.

Table 5: Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Portion A, B and the Remainder

<u>Ptn No</u>	<u>Zoning</u>	<u>±Area (m²)</u>
Ptn A	Undetermined	157757,59
Ptn B	Undetermined	846123,42

The subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 is depicted under **Figure 11** below.

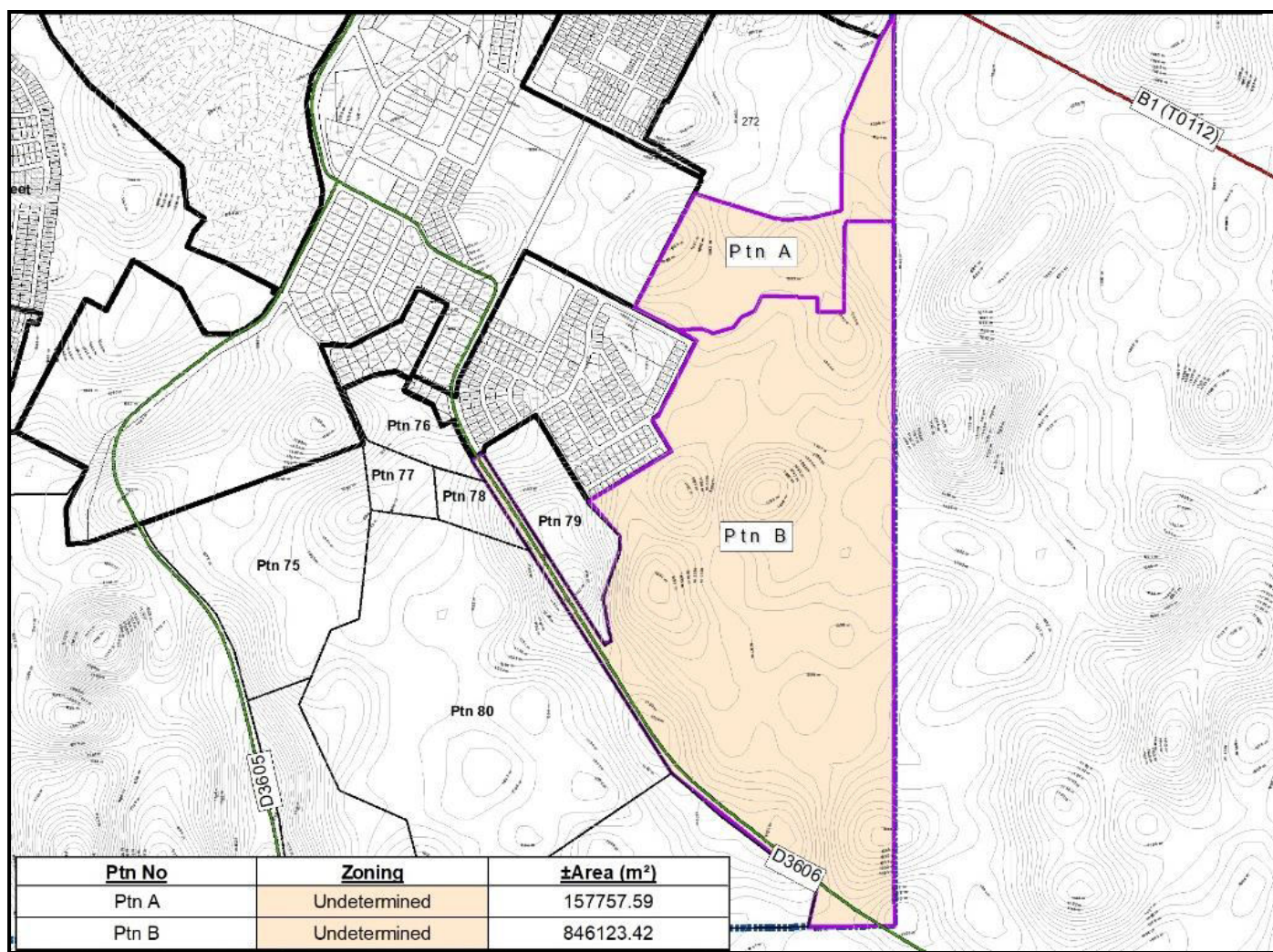


Figure 11: Subdivision of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Portion A, B and the Remainder

4.3.3 Consolidation of Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 into Consolidated Portion X;

Erf 272 and Portion A of the Remainder of the Farm Ondangwa Town and Townlands No. 882 are to be consolidated for the establishment of the Okangwena Townships as afore mentioned. The consolidation of Erf 272 and Portion A of the Farm Ondangwa Town and Townlands No. 882 into consolidate Portion X is outlined in **Table 6** below.

Table 6: Consolidation of Erf 272 and Portion A of the Farm Ondangwa Town and Townlands No. 882 into consolidate Portion X

Ptn No	Zoning	± ha
272	Undetermined	23,3783
Ptn A	Undetermined	15,7758
Consolidated Ptn X	Undetermined	39,1541

Figure 12 below depicts the consolidation of Erf 272 and Portion A of the Farm Ondangwa Town and Townlands No. 882 into consolidate Portion X

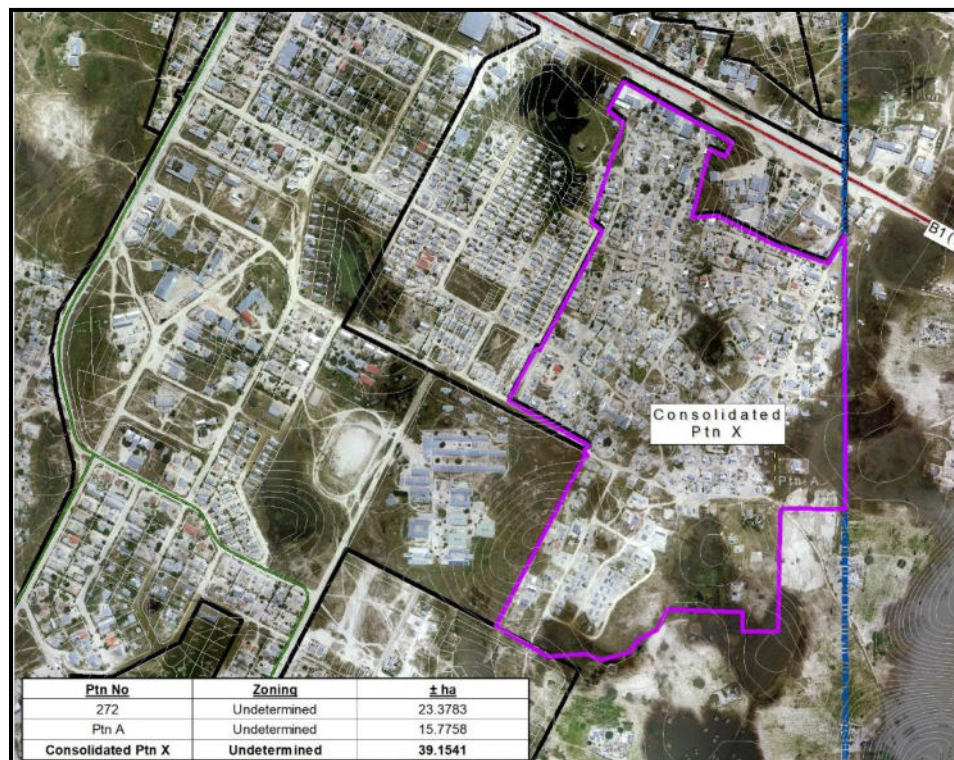


Figure 12: Consolidation of Erf 272 and Portion A of the Farm Ondangwa Town and Townlands No. 882 into “Consolidate Portion X”

4.3.4 Layout approval and Township Establishment on Portion A (a portion of Consolidated Portion X) to become known as Okangwena Proper;

The formalization of Okangwena Proper, comprising 162 erven and Remainder (streets), seeks to align existing land uses with the appropriate zoning, reinforcing the current development patterns. With 130 Single Residential erven, the layout prioritizes accommodating existing households while offering a range of residential options.

The Single Residential erven sizes, ranging from 218m² to 450m² on average, thus reflecting the diverse needs of the community, ensuring flexibility and inclusivity. However, there are some residential erven much larger than this. The layout plan for proposed Okangwena Proper has the aim to accommodate the existing households as much as possible.

The layout also makes provision for five (5) General Residential Properties, thus promoting a variety of housing typologies which will promote inclusivity and social diversity. These general residential properties will in the near future offer choice and cater to the different income levels.

There are twenty-four (24) Business zoned properties, these properties have been operating business activities as such the proposed zoning will allow these business to gain legal recognition, ensuring that they are in compliance with regulations and foster long term growth and development.

There are three (3) Public Open Space reserved in the layout, and these Public Open Spaces have been created to accommodate the existing powerlines.

Overall, the formalization of Okangwena Proper is a recognition of the established land uses and an essential step toward enhancing the legal status of the area, creating a more organized and cohesive environment. Please refer to **Table 7** below.

Table 7: Summary Table for Okangwena Proper:

Zoning	No of Erven	± Total Area (ha)	% of Total Area
Single Residential	130	7.02	60.16
General Residential	5	0.22	1.91
Business	24	1.39	11.94
Public Open Space	3	0.06	0.52
Street	Remainder	2.97	25.47
Total	162 & Remainder	11.67	100.00

There are no other land uses other than Single Residential, General Residential, Business and Public Open Space provided for in Okangwena Proper, as the neighbouring Okangwena Extension 1 and 2 has these supporting land uses, and they can be utilised by the residents of Okangwena Proper.

The street network of Okangwena Proper will allow for the efficient connection of services, as well as the efficient distribution of traffic throughout the neighbourhood. The streets vary in width, from a minimum of 10 metre wide to 12-metre-wide streets.

In the formalization of Okangwena proper, the decision to limit public open space provision stems from the need to prioritize essential infrastructure and housing density in alignment with the residential needs of the residents. By focusing on maximizing land use efficiency, Council can better accommodate the growing population and improve living conditions.

The layout of Okangwena Proper is depicted in **Figure 13** below.

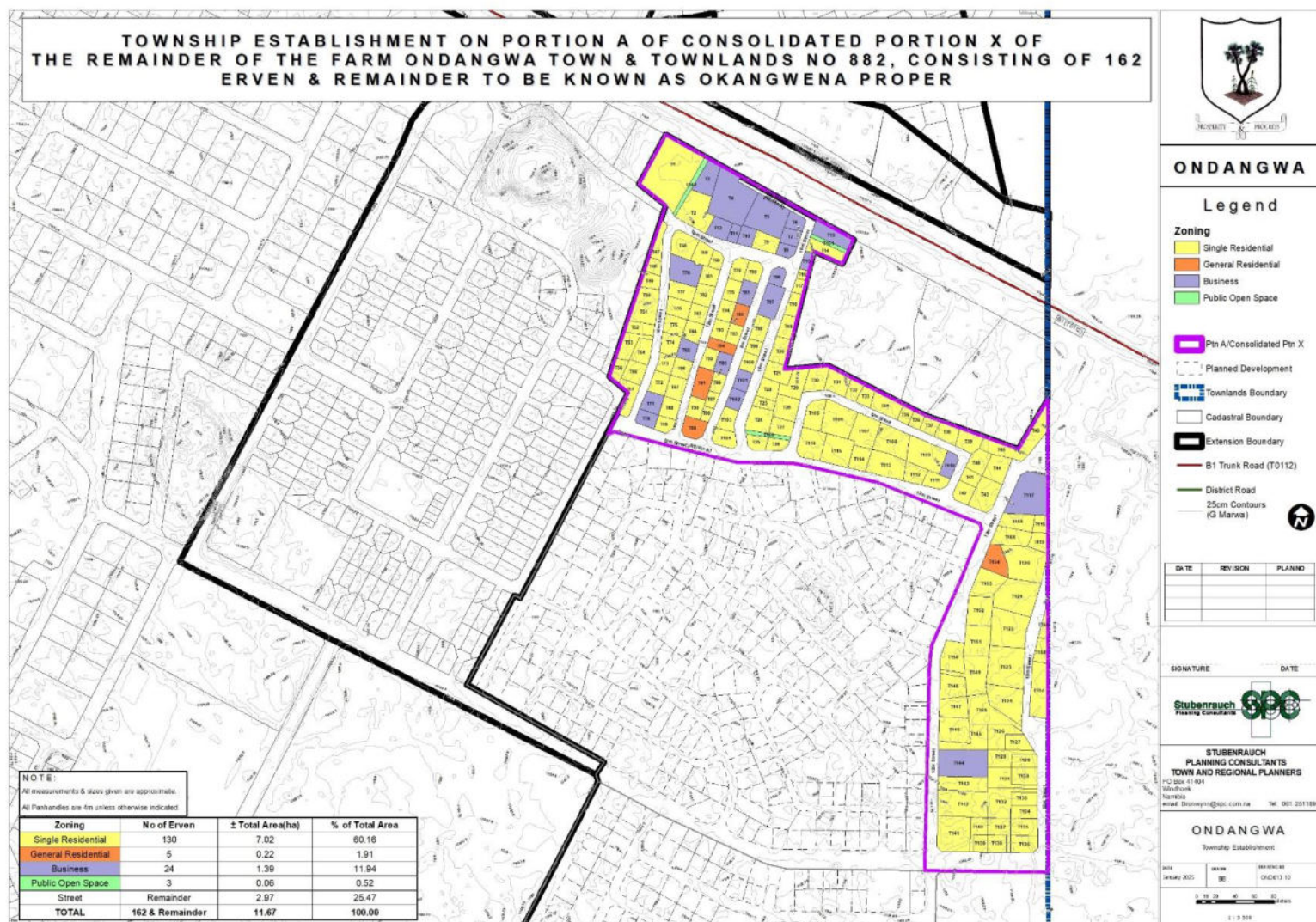


Figure 13: Layout of Proposed Okangwena Proper of Portion A (a portion of Consolidated Portion X)

4.3.5 Layout approval and Township Establishment on Portion B (a portion of Consolidated Portion X) to become known as Okangwena Extension 1;

Okangwena Extension 1 comprises 261 erven and Remainder (Streets), with a focus on providing residential opportunities. The 232 Single Residential erven, alongside 11 General Residential erven, aim to meet the growing demand for housing, while the variety in erven sizes accommodates diverse housing needs. The General Residential erven promote housing diversity, catering to different income levels and fostering inclusivity within the community.

Okangwena Extension 1 makes provision for nine (9) Business erven, and all of these erven measure 0.55ha in extent. The business erven will provide a commercial aspect to the neighbourhood, as there are developed shops, convenience stores, and other business-related land uses that allow the residents of Okangwena Extension 1 to obtain amenities, without having to travel to the Central Business District of Ondangwa.

Additionally, there are four (4) Institutional erven which are crucial for community services. Three of the institution zoned erven currently accommodates an existing kindergarten south of the extension, a kindergarten north east of the extension. An additional vacant institutional erf has been created, this erf will be developed as per the needs of the community. This includes community facilities such as a library, a community centre and other related land uses.

The layout also incorporates three (3) Local Authority erven, two of these erven accommodate a pump station as well as a kiosk respectively. The additional erf created will be developed to accommodate a "Civic office" as per the needs of the Ondangwa Town Council.

One vacant Public Open Space has been created. This Public Open Space can be developed into recreational areas, as determined by the community's needs. This can include play park and other related land uses.

This formalization aligns existing land uses with appropriate zoning and infrastructure, creating a cohesive, well-served neighborhood that addresses residential, commercial, and institutional needs while preparing for future growth. Please refer to **Table 8** below.

Table 8: Summary Table for Okangwena Extension 1:

Zoning	No of Erven	± Total Area (ha)	% of Total Area
Single Residential	232	10.70	66.87
General Residential	11	0.72	4.47
Business	9	0.55	3.41
Institutional	4	0.26	1.65

Local Authority	3	0.20	1.28
Public Open Space	2	0.25	1.54
Street	Remainder	3.33	20.78
Total	261 & Remainder	16.01	100.00

The street network of Okangwena Extension 1 is an extension of the neighbouring extension of Okangwena Proper. It follows a simple grid layout, which will allow for the efficient connection of services, as well as the efficient distribution of traffic throughout the neighbourhood. The streets vary in width, from a minimum of 10 metre wide to 15-metre-wide streets.

The layout of Okangwena Extension 1 is depicted in **Figure 14** below.

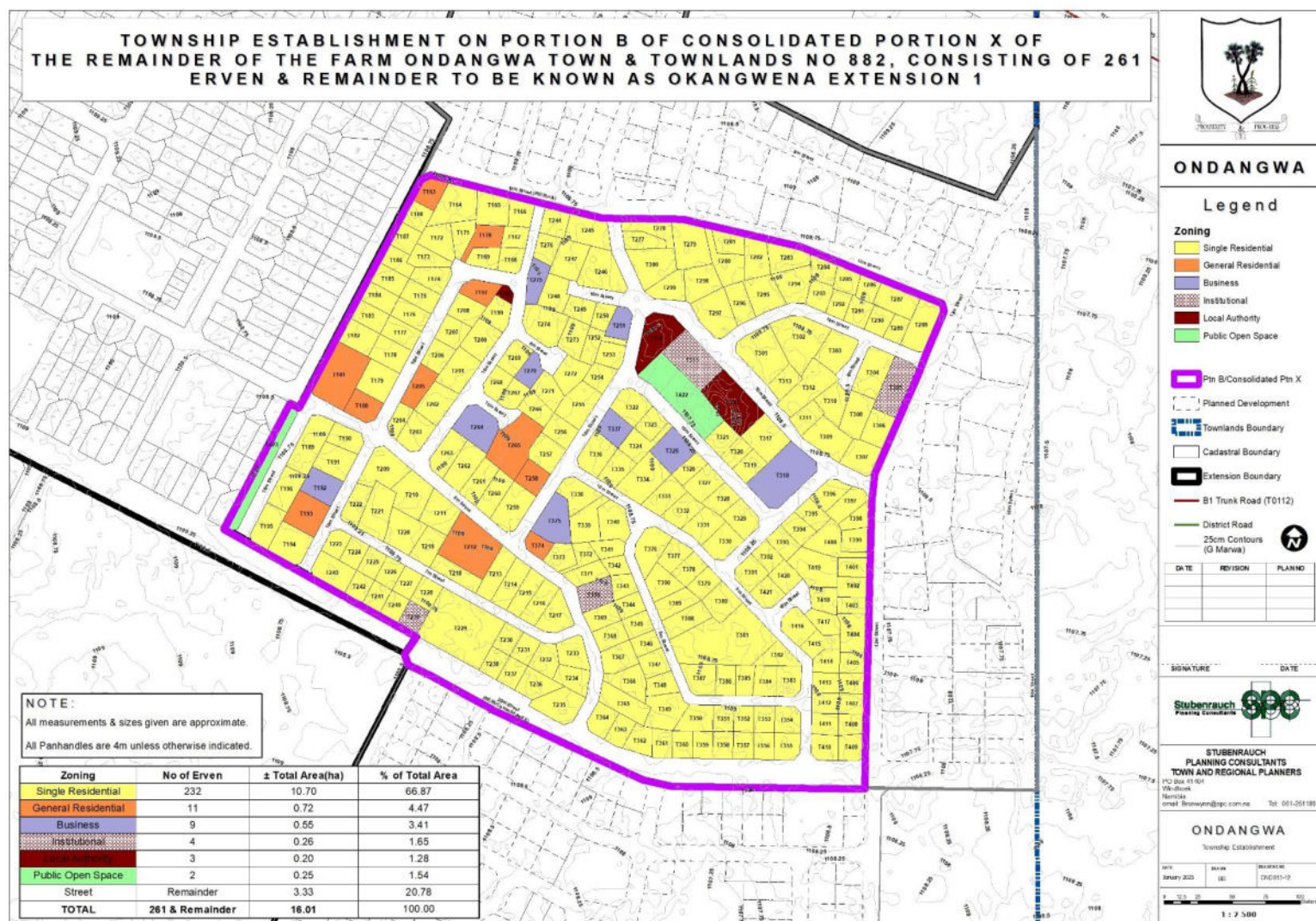


Figure 14: Layout of Proposed Okangwena Extension 1 on Portion B (a portion of Consolidated Portion X)

5.6. Layout approval and Township Establishment on the Remainder of “Consolidated Portion X” to become known as Okangwena Extension 2;

Okangwena Extension 2 proposes 148 erven and Remainder (Steets), with 137 Single Residential erven forming the core of the development. The layout addresses the need for residential properties while offering flexibility in house sizes, ranging from 283m² to larger homestead erven.

Okangwena Extension 2 makes provision for two (2) General Residential erven, these erven collectively measure 0.07ha in extent. The General Residential erven already accommodate rental units, as such, this zoning is merely to formalize these land use activities.

A total of six (6) erven measuring 1.45ha have been zoned Institutional, some of which accommodate school, kindergarten, creche and churches. An additional vacant institutional erf has been created, this erf will be developed as per the needs of the community. This includes community facilities such as a library, a community centre and other related land uses.

The layout makes provision for one (1) Local Authority erf. The erf created will be developed to accommodate the needs of the Ondangwa Town Council.

Okangwena Extension 2 makes provision two (2) Public Open Space. This Public Open Spaces can be developed into recreational areas, soccer fields and other related land uses as determined by the community's needs.

The street network in Okangwena Extension 2 is designed to be in harmony with the neighboring areas, ensuring seamless connectivity and efficient infrastructure distribution. The formalization of this extension will provide a structured environment where residential, commercial, and institutional land uses are in harmony, enhancing the livability and functionality of the area. Please refer to **Table 7** below.

Table 7: Summary Table for Okangwena Extension 2

Zoning	No of Erven	± Total Area (ha)	% of Total Area
Single Residential	137	5.73	50.54
General Residential	2	0.07	0.61
Institutional	6	1.45	12.83
Local Authority	1	0.05	0.42
Public Open Space	2	1.21	10.65
Street	Remainder	2.83	24.95
Total	148 & Remainder	11.33	100.00

The layout of Okangwena Extension 1 is depicted in **Figure 15** of this application.

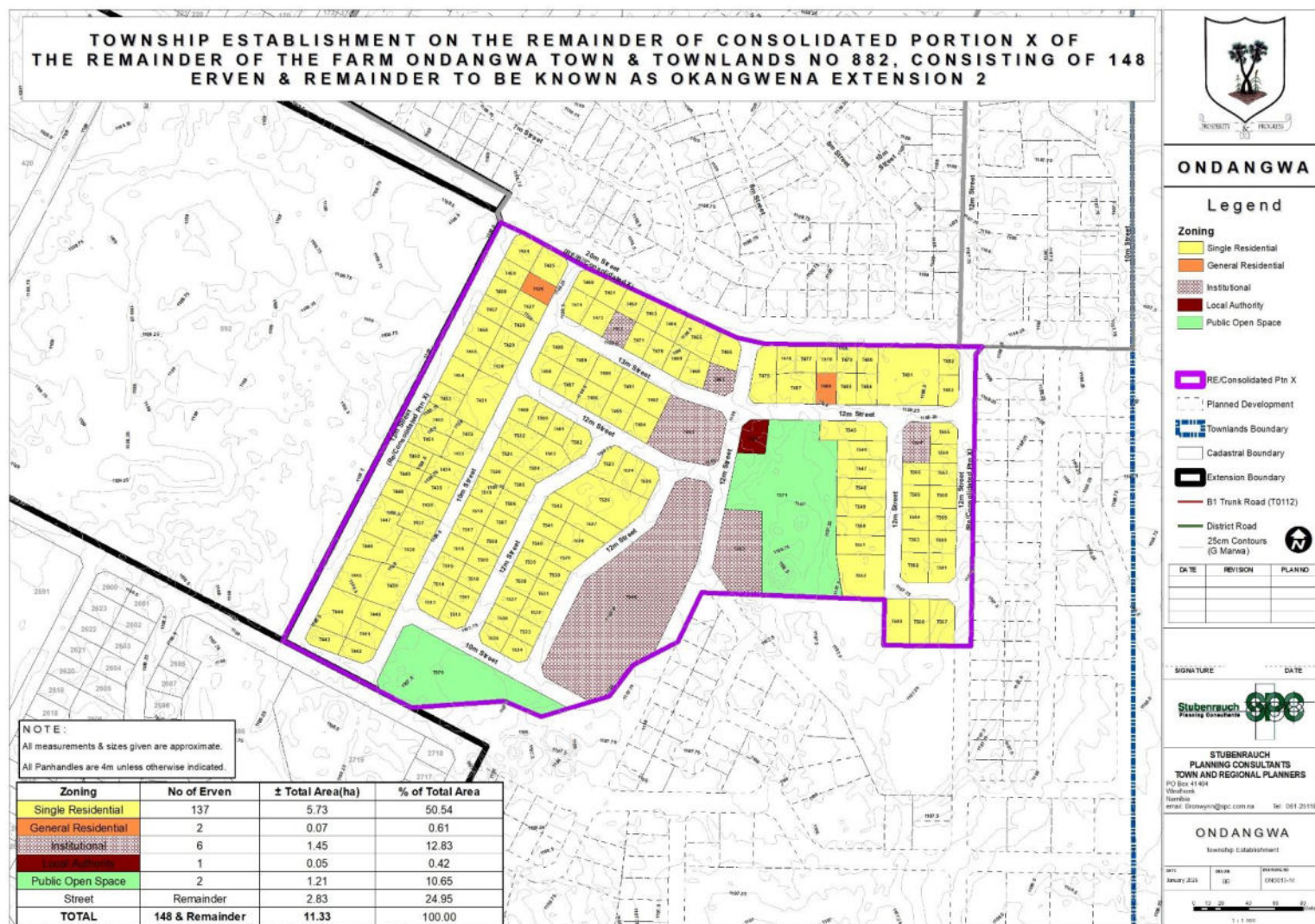


Figure 15: Layout of Proposed Okangwena Extension 2 on the Remainder of Consolidated Portion X

4.3.6 Engineering Services and Access Provision

4.3.6.1 Water and Electricity

Most households within the area of Okangwena, designated for formalization, already have access to water and electricity provided by the Ondangwa Town Council. These existing connections will be retained, ensuring uninterrupted service to residents. Any new or additional connections will be installed by the Ondangwa Town Council in compliance with established standards and regulations.

4.3.6.2 Sewer

There are sewer connections in the neighbourhood of Okangwena which is to be formalized.

4.3.6.3 Storm Water

The area of Okangwena which is to be formalized is not heavily prone to stormwater ponding which however, there has been provision to fairly accommodate stormwater in the layout plan for the Okangwena townships on erven which are zoned "Public Open Space".

Further measures necessary to manage the storm water within the area are to be employed in accordance with the Ondangwa Town Council's storm water drainage system.

4.3.6.4 Access Provision

The layout plans for proposed Okangwena Proper, Okangwena Extension 1 and Okangwena Extension 2 makes provision for an efficient road network for ease of movement within the neighborhood and for efficient connectivity to the surrounding areas.

The major existing movement networks have been fairly respected and incorporated in the proposed layout plans for the proposed township. Panhandles, 4 meters wide were created in the formalization of newly created townships. These panhandles are necessary to enable access to residential properties that do not have direct street access.

The width of the roads in the proposed township range between 10m to 15m.

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 9** below for the activities undertaken as part of the public participation process. The I&APs were given time to comment from **21 February 2024 to 12 March 2024**.

Table 9: Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notice/poster in Ondangwa	See Annexure A
Placing advertisements in two newspapers namely the Namibian and New Era (22 November 2024 and 29 November 2024)	See Annexure B
Written notice to surrounding property owners and Interested and Affected Parties via Email (22 November 2024)	See Annexure C
Two public meeting held on 6 & 7 December 2024 on site in Ondangwa	See Annexure C

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 was informed of the availability of the DESR for public comment *via* a letter/email dated **28 February 2025**. An Executive Summary of the DESR was also included in the letters to the registered I&APs. I&APs had until **14 March 2025** 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 10**.

Table 10: 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
	<p>Medium: Natural and/or social functions/processes are notably altered in a modified way</p> <p>High: Natural and/or social functions/processes are severely altered and may temporarily or permanently cease</p>
<p>Probability of occurrence Describe the probability of the Impact <u>actually</u> occurring</p>	<p>Improbable: Not at all likely</p> <p>Probable: Distinctive possibility</p> <p>Highly probable: Most likely to happen</p> <p>Definite: Impact will occur regardless of any prevention measures</p>
<p>Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p>Unsure/Low: Little confidence regarding information available (<40%)</p> <p>Probable/Med: Moderate confidence regarding information available (40-80%)</p> <p>Definite/High: Great confidence regarding information available (>80%)</p>
<p>Significance Rating The impact on each component is determined by a combination of the above criteria.</p>	<p>Neutral: A potential concern which was found to have no impact when evaluated</p> <p>Very low: Impacts will be site specific and temporary with no mitigation necessary.</p> <p>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</p> <p>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.</p> <p>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.</p>

*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 16** 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.

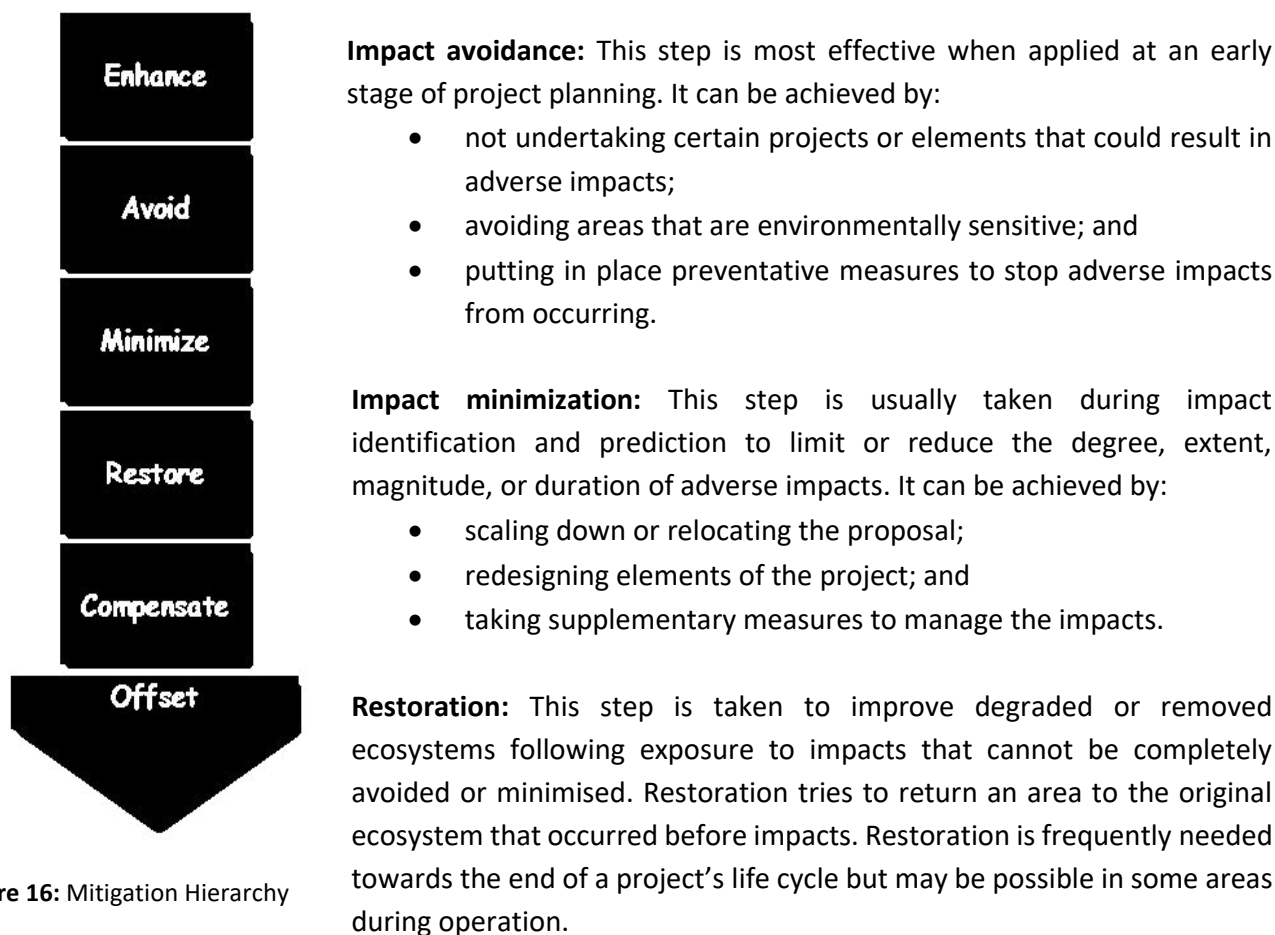


Figure 16: Mitigation Hierarchy

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 (offset), 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: DEAF for consideration. In turn, MEFT: DEAF'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 sites are currently undeveloped. Once the proposed sites are developed traffic in the area is expected to increase. The traffic is not expected to increase significantly as the portions are in close proximity to an already developed area within the town.

7.2.2 Existing Service Infrastructure Impacts

The subject erven is fully connected to the municipal reticulation system of the Ondangwa Town Council, which consists of water, electricity and sewer connections, this connection will be maintained. Storm water run-off will be accommodated within the street reserves or then as stipulated by the Ondangwa Town Council.

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)

The land uses that currently exist in the area, the natural environment and drainage patterns are respected, and as such, no negative impacts on the natural or urban environment of Ondangwa are expected to arise from the proposed development. The physical land use for the property will also not negatively impact the natural environment as most of the vegetation found on-site will be respected in all the town planning processes.

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 minimized by the fact that the construction phase will be a short-term activity.

The area is located on higher grounds, limiting the effect of possible inundations from the natural stormwater drainage lines (iishana) which surround the subject area.

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.

7.4 CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC 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. Section 3.1.2 provides an overview of the archaeological and heritage context of the town and region.

7.4.2 Health, Safety and Security Impacts

Due to the demand for construction workers during the construction of the proposed project an influx of migrant workforce who will require temporary accommodation in Ondangwa might be experienced. Experience with other construction projects in a developing-world context has shown that, where migrant construction workers have the opportunity to interact with the local community, a significant risk is created for the development of social conditions and sexual behaviors that contribute to the spread of HIV and AIDS.

In response to the threat the pandemic poses, MEFT has developed a policy on HIV and AIDS. This policy, which was developed with support from USAID, GTZ and the German Development Fund, provides for a non-discriminatory work environment and for workplace programs managed by a Ministry-wide committee. The MEFT has also recently initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.

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, but it will also impact on the roads in the area.

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.

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.

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.

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.

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

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 Ondangwa who frequent the sites.

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 even 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.

7.5.4 Waste Impacts

Increased amounts of waste may be generated as a result of the operational activities at the sites. Effective waste management on site should be practiced as per the recommendations in the EMP.

7.5.5 Social Impacts

The establishment of Okangwena Proper, Okangwena Extension 1, and Okangwena Extension 2 aims to formalize the previously informal settlement, enabling the Ondangwa Town Council to grant freehold land titles to residents and provide them with tenure security.

Tenure security is essential as it grants residents legal recognition of their property, protecting them from eviction and displacement while allowing them to pass down their land to future generations, ensuring long-term family stability. With official land ownership, residents gain a sense of ownership, encouraging investment in their properties, enhancing living conditions, and fostering community development and cohesion.

Additionally, formalization will enable the Town Council to establish clear property boundaries and facilitate access to essential services, such as water, sanitation, and electricity, significantly improving residents' quality of life.

A major challenge associated with informal settlements is the lack of land titles, which often prevents residents from accessing financial credit. By formalizing the area, property owners will have the ability to use their land as collateral for loans, easing access to credit for home improvements and business investments, ultimately driving individual and community-level economic growth.

Therefore, the proposed township establishment is expected to have a positive socio-economic impact on Ondangwa, contributing to sustainable urban development and improved livelihoods for its residents.

7.6 CUMULATIVE IMPACTS

The cumulative impact of the proposed developments regarding 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.

7.7 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, operation and decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

7.8 SUMMARY OF POTENTIAL IMPACTS

A summary of all the potential impacts from the proposed project assessed above is included in **Table 11**. The **Tables 12 – 14** 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 11: 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	Ondangwa	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. Proposed services	Ondangwa	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
CONSTRUCTION PHASE										
3. Biodiversity (Fauna and Flora)	Ondangwa	No mitigation	Local	Medium-Low	Short term	Medium	Probable	Certain	Reversible	Medium (-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
4. Surface & ground water	Ondangwa	No mitigation	Local	Medium	Short 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	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	Ondangwa	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	Ondangwa	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	Ondangwa	No mitigation	Local	Medium-Low	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
8. Traffic impacts	Ondangwa	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

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
9. Noise impacts	Ondangwa	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	Ondangwa	No mitigation	Local	Medium	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Low	Short term	Very 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
11. Municipal services	Ondangwa	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)
	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	Ondangwa	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	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
13. Hazardous Substances	Ondangwa	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Medium (-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. Visual & sense of place	Ondangwa	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		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
2. Noise	Ondangwa	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

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

Table 12: Proposed mitigation measures for the planning and design phase

PLANNING AND DESIGN PHASE IMPACTS	
Impact	Mitigation Measures
Traffic	<ul style="list-style-type: none"> • Ensure that road junctions have good sightlines. • Provide formal road crossings at relevant areas. • Provide for speed reducing interventions such as speed bumps at relevant road sections.
Existing Service Infrastructure	<ul style="list-style-type: none"> • It is recommended that alternative and renewable sources of energy be explored and introduced into the proposed development to reduce dependency on the grid. • Solar geysers and panels should be considered to provide for general lighting and heating of water and buildings. • 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.

Table 13: Proposed mitigation measures for the construction phase

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
Flora and Fauna	<ul style="list-style-type: none"> • 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.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Regular inspection of the marking tool should be carried out. • 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; <i>Lantana</i>, <i>Opuntia</i>, <i>Prosopis</i>, <i>Tecoma</i>, etc.; as part of the landscaping as these species could infest the area further over time.
Surface and Ground Water Impacts	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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. Restrict unauthorised access to the site and implement access control 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 on site. 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.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
Traffic	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 if noise levels are significantly high. • 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	<ul style="list-style-type: none"> • 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. • 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.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
Waste	<ul style="list-style-type: none"> • 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 general waste. • 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	<ul style="list-style-type: none"> • 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 14: Proposed mitigation measures for the operational phase

OPERATIONAL PHASE IMPACTS	
Impact	Mitigation Measures
Visual and Sense of Place	<ul style="list-style-type: none"> • 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 minimise large advertising billboards).
Noise	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Consider tarring of the internal road network. • Manage activities that generate emissions.
Waste	<ul style="list-style-type: none"> • Solid waste will be collected from site regularly. • Waste should be disposed of at an appropriate local land fill, in consultation with the local authority. • No waste may be buried or burned.
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 FESR and describe the way forward.

8.1 CONSTRUCTION PHASE IMPACTS

With reference to **Table 13**, none of the negative construction phase impacts were deemed to have a high significance impact on the environment. The 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 opportunities during construction as well the increased development within the area. Furthermore, the community of Ondangwa are expected to benefit from the new accommodation facility due to it providing housing and additional amenities which may not be readily available in the town.

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 MET: DEAF 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 MET: DEAF could be enforced as Conditions of Approval in the Environmental Authorisation, should MET: DEAF 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 in its current state. The local community is expected to benefit from the development as a result of the potential job opportunities during construction as well as the increased development within the area. Furthermore, the community of Ondangwa are further expected to benefit from the new erven which will make available much needed residential erven. 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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