

Environmental Assessment Scoping Report for

Subdivision, Rezoning, Creation of Street, and the Registration of 15m wide Waterline Servitude on Erf 1924, Hentiesbaai Extension 8, Erongo Region.

August 2023

Prepared for: Henties Bay Municipality

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PROJECT DETAILS

Title	Environmental Scoping Report for the: <ul style="list-style-type: none"> Subdivision, Rezoning, Creation of Street, and the Registration of 15m wide Waterline Servitude on Erf 1924, Hentiesbaai Extension 8, Erongo Region. 		
Report Status	Final		
SPC Reference	HEN/007		
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EXECUTIVE SUMMARY

Introduction

Henties Bay Municipality hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder;**
- **Rezoning of Erf B/1924, Hentiesbaai Extension 8 from “Cemetery” to “Parking”;**
- **Rezoning of Erf C/1924, Hentiesbaai Extension 8 from “Cemetery” to “Public Open Space”;**
- **Reservation of Erf RE/1924, Hentiesbaai Extension 8 as “Street”;**
- **Registration of a 15m wide Waterline Servitude against Erven C/1924 and Re/1924, Hentiesbaai Extension 8 in favour of Namwater;**
- **Inclusion of the rezonings in the next zoning scheme to be prepared for Henties Bay.**

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

The proponent (Henties Bay Municipality) intends to subdivide Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder for the Namibia Water Corporation (Pty) Ltd (NamWater) to be able to re-place the existing water pipeline which currently runs across the Hentiesbaai Cemetery on Erf 1924, Hentiesbaai Extension 8 as it now lacks capacity and has reached the end of its life span. NamWater further intends to re-route the water pipeline and cancel the 20m wide Waterline Servitude registered against Erf 1924, Hentiesbaai Extension 8 in favour of NamWater as it currently limits the utilisation of land to full capacity. The water pipeline is to be redirected to run across the erf to be created southeast of Erf 1924, Hentiesbaai Extension 8, to allow for the maximum utilization of land.

In addition, the Municipality of Henties Bay has also resolved to utilise a portion of Erf 1924, Hentiesbaai Extension 8 which currently accommodates the NamWater pipeline for parking purposes once the pipeline has been successfully rerouted as intended by NamWater. The Municipality further intends to have the existing internal road which currently provides access to the cemetery formally extended and connected to the C34 Main Road to Terrace Bay this can be seen in **Figure 8, Figure 9, and Figure 10.**

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 **08 June 2023**;
- Notices were placed in The New Era dated **08 June 2023 and 15 June 2023**, briefly explaining the activity and its locality, inviting members of the public to register as I&APs (**Appendix B**); and
- Notices were fixed at the project site (see **Appendix A**).

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 **29 June 2023**). The comment period will remain open until the final scoping report is submitted to MEFT.

The Draft Scoping Report was circulated from the **27 July 2023 until the 10 August 2023** so that the public could review and comment on it. The overall commentary received from the public on the draft report will be documented in the comments and responses report document of this report.

Conclusions and Recommendations

With reference to **Table 8**, none of the negative planning and design, construction or operational phase impacts were deemed to have a high significant impact on the environment. The impacts were assessed to a **Medium to Low (negative)** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the construction phase impacts is likely to be reduced to a **Low (negative)**. The social impact was assessed to have **Medium (positive)** impact associated with possible job opportunities during construction and operation.

It is recommended that this project be authorised because should the development not proceed the subject erven will remain undeveloped and underutilised. This would result in no additional erven being developed. None of the positive or negative impacts from the proposed development would be realized.

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
MET	Ministry of Environment 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
PPP	Public Participation Process
SADC	Southern African Development Community
SPC	Stubenrauch Planning Consultants
USAID	United States Agency for International Development
VMMC	Voluntary Medical Male Circumcision

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Henties Bay Municipality hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder;**
- **Rezoning of Erf B/1924, Hentiesbaai Extension 8 from “Cemetery” to “Parking”;**
- **Rezoning of Erf C/1924, Hentiesbaai Extension 8 from “Cemetery” to “Public Open Space”;**
- **Reservation of Erf RE/1924, Hentiesbaai Extension 8 as “Street”;**
- **Registration of a 15m wide Waterline Servitude against Erven C/1924 and Re/1924, Hentiesbaai Extension 8 in favour of Namwater;**
- **Inclusion of the rezonings in the next zoning scheme to be prepared for Henties Bay.**

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 (b) Infrastructure	The construction of Public roads	The proposed project includes the construction of a public road.
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 construction of a public road.

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

Erf 1924, Hentiesbaai Extension 8 is located on the north-eastern part of the Henties Bay Town, directly southwest of the C34 Main Road to Terrace Bay and it measures approximately 37 489m² in extent. The locality of the proposed site can be observed in **Figure 1** overleaf.

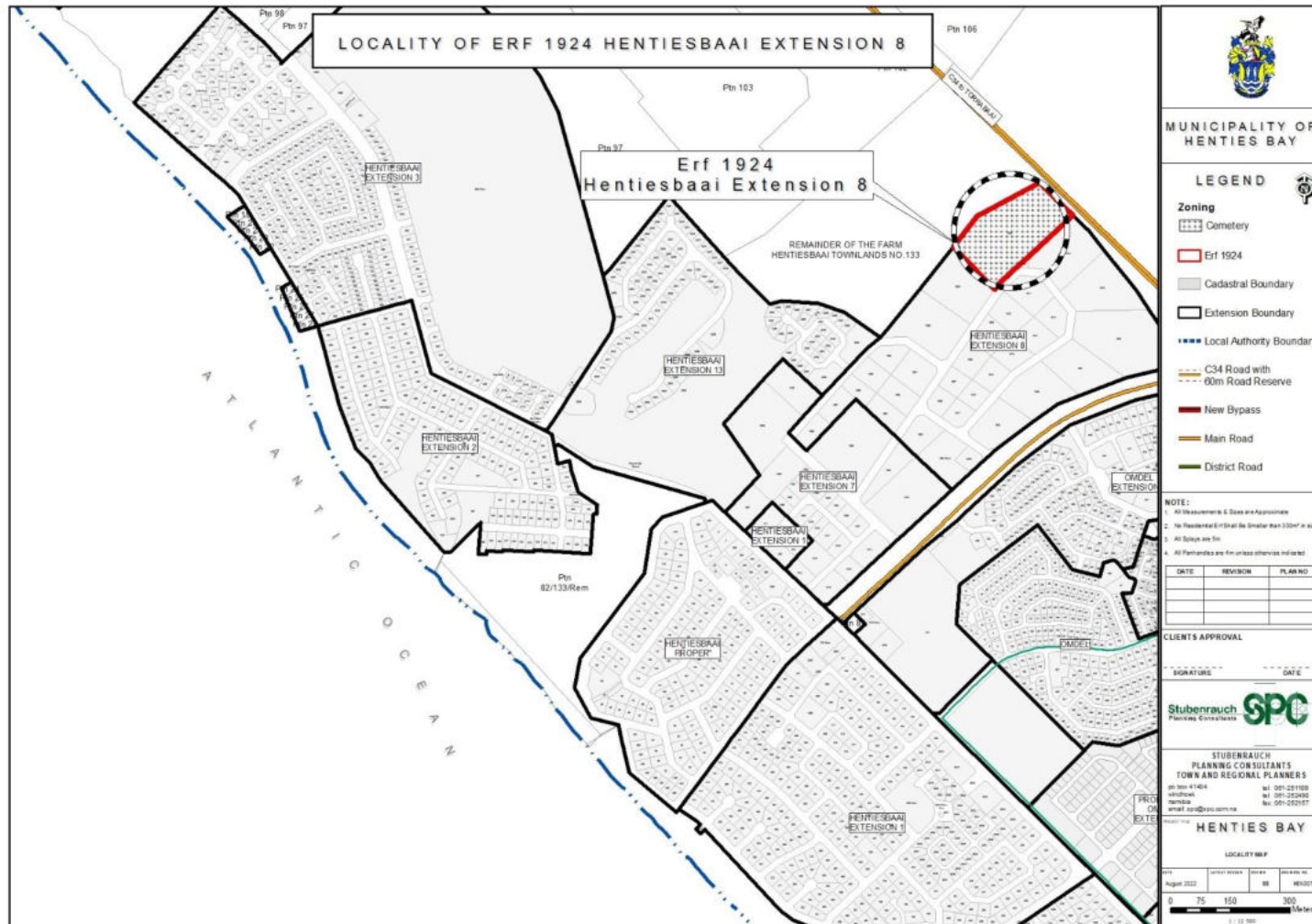


Figure 1: Locality Map of Erf 1924, Hentiesbaai Extension 8

1.3 TERMS OF REFERENCE AND SCOPE OF PROJECT

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

- **Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder;**
- **Rezoning of Erf B/1924, Hentiesbaai Extension 8 from “Cemetery” to “Parking”;**
- **Rezoning of Erf C/1924, Hentiesbaai Extension 8 from “Cemetery” to “Public Open Space”;**
- **Reservation of Erf RE/1924, Hentiesbaai Extension 8 as “Street”;**
- **Registration of a 15m wide Waterline Servitude against Erven C/1924 and Re/1924, Hentiesbaai Extension 8 in favour of Namwater;**
- **Inclusion of the rezonings in the next zoning scheme to be prepared for Henties Bay.**

1.4 ASSUMPTIONS AND LIMITATIONS

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

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

1.5 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT

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

Table 2: Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of FESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to Annexure E
8 (b)	A description of the proposed activity;	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
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 identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
	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 F

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 (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 and consolidation of land as well as the establishment of townships 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
	<p>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.</p>	<p>not be removed without a permit from the Ministry of Agriculture, Water and Forestry.</p>
<p>Atmospheric Pollution Prevention Ordinance No 45 of 1965</p>	<p>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.</p>	<p>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).</p>

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 3** below) provides an outline of the EIA process to be followed.

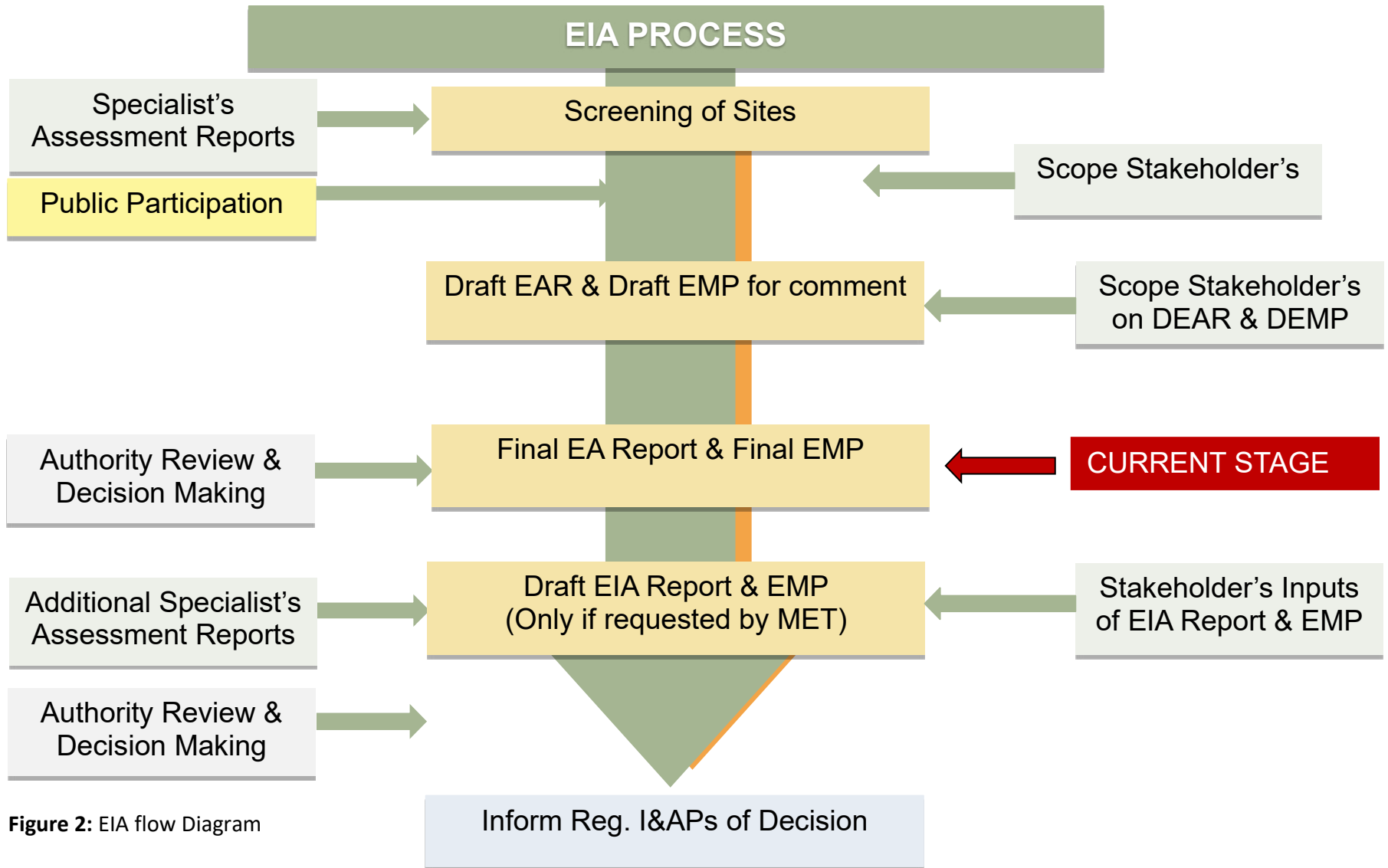


Figure 2: EIA flow Diagram

3 ENVIRONMENTAL BASELINE DESCRIPTION

3.1 SOCIAL ENVIRONMENT

3.1.1 Socio-Economic Context

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

Table 4: Statistics of the Arandis Constituency and Erongo Region (Namibia Statistics Agency, 2011)

ARANDIS CONSTITUENCY	
ATTRIBUTE	INDICATOR
Population (Henties Bay)	4 720
Population	10 093
Females	4 852
Males	5 241
Population under 5 years	10%
Population aged 5 to 14 years	64%
Population aged 15 to 59 years	64%
Population aged 60 years and above	8%
Female: male ratio	108:100
Literacy rate of 15 years old and above	98%
People above 15 years who have never attended school	4%
People above 15 years who are currently attending school	13%
People above 15 years who have left school	80%
People aged 15 years and above who belong to the labour force	71%
Population employed	72%
Homemakers	5%
Students	49%
Retired or old age income recipients	46%
Income from pension	10%
Income from business and non-farming activities	6%
Income from farming	1%
Income from cash remittance	3%
Wages and salaries	72%
Main Language (Erongo Region)	Oshiwambo-38.8%
ERONGO REGION	
ATTRIBUTE	INDICATOR
Population	150 809
Population aged 60 years and above	6%
Population aged 5 to 14 years	17%
Population aged 15 to 59 years	64%

3.1.2 Archaeological and Heritage Context

The subject site is not known to be of any historical significance. No significant archaeological and heritage sites are known to be located within the proposed development area.

3.2 BIO-PHYSICAL ENVIRONMENT

3.2.1 Climate

The weather along the coast of Namibia is relatively different from that inland. The coastal climate is characterised by lower rainfall, lower temperature, less radiation and sunshine, stronger winds and frequent fog (Mendelsohn, Jarvis, Roberts, *et al.*, 2002). The average annual temperature ranges between 16°C and 17°C as indicated in **Figure 4** below. The average maximum temperature for Henties Bay varies between less than 20°C and 22°C with the average minimum temperature between 8°C and 10°C.

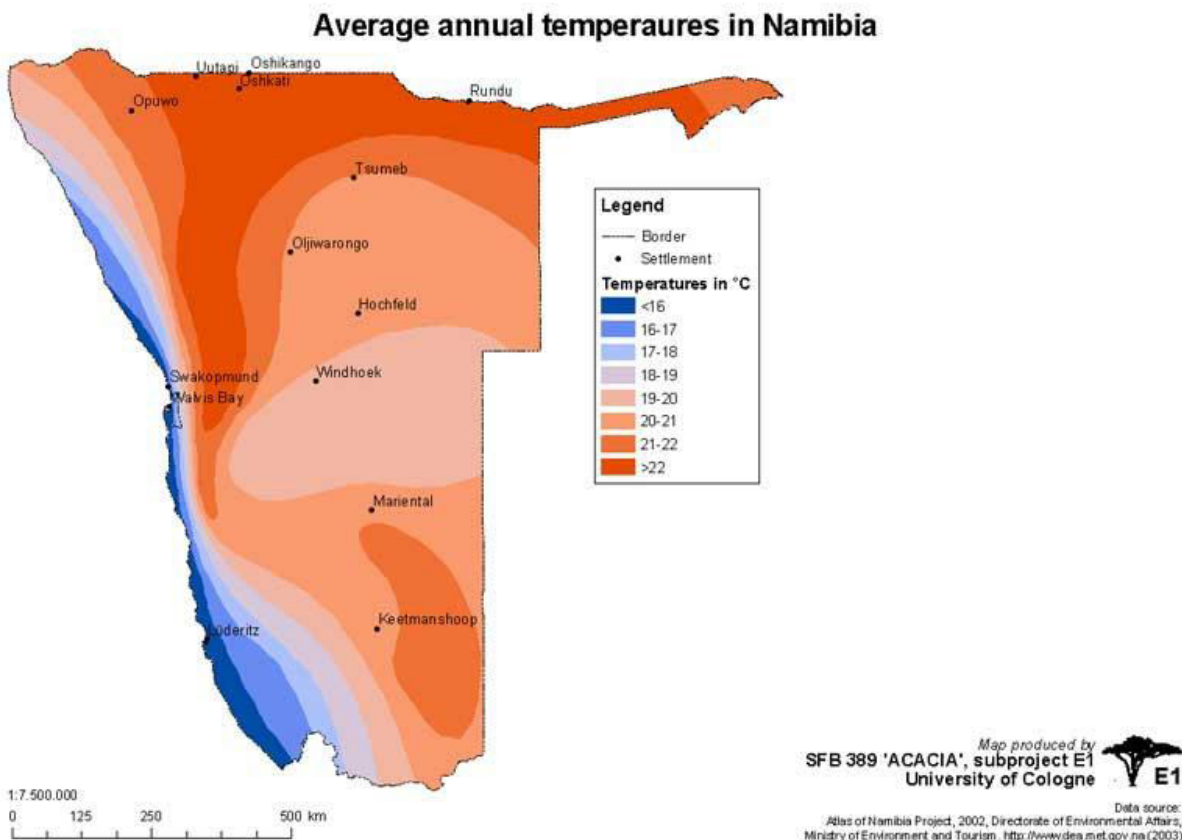


Figure 3: Annual average temperature (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/e1_download_climate_e.htm#temperature_annual)

Along the coast rainfall is much less than further inland. Average annual rainfall for Henties Bay is less than 50 mm per year as indicated in **Figure 5** below.

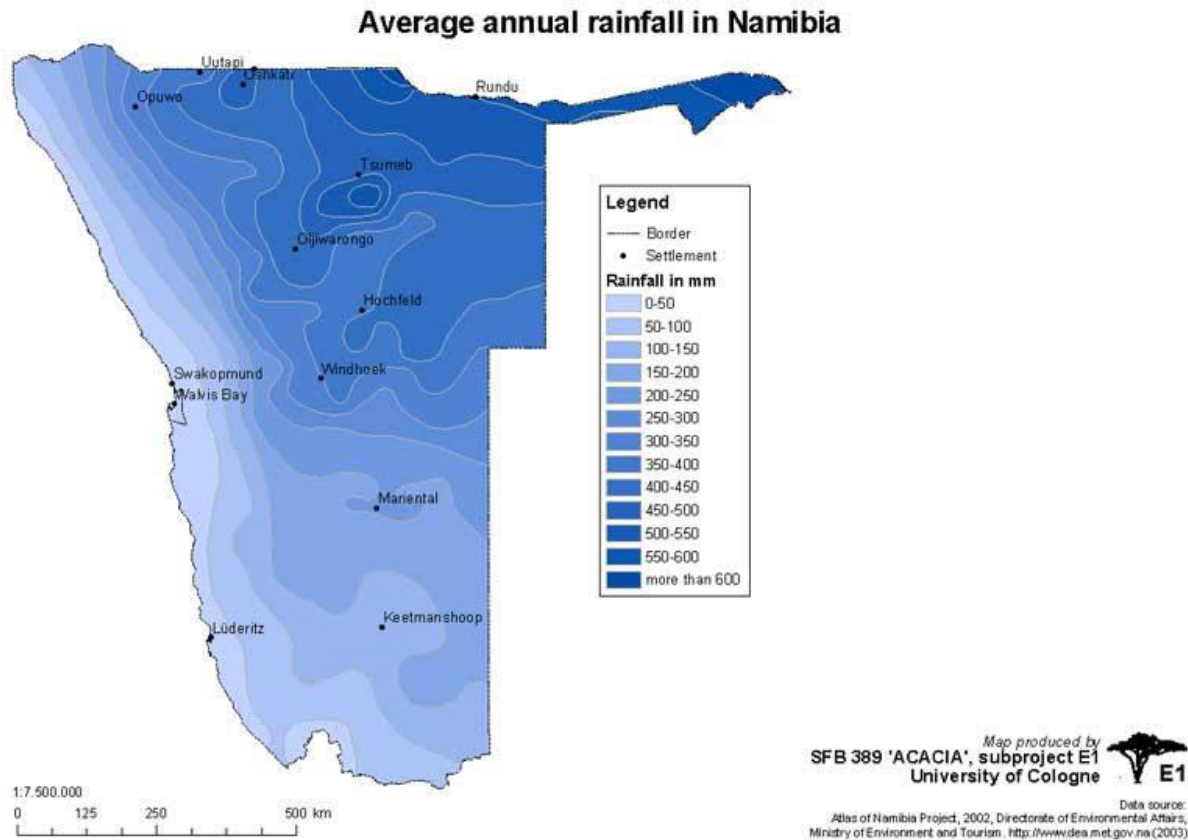


Figure 4: Average annual Rainfall (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/climate/rainfall-annual.jpg)

3.2.2 Topography, Geology and Soils

In the Erongo Region the land rises steadily from sea level to about 1000 meters across the breadth of the Namib. Namibia's highest mountain, Brandberg (2,579 m), lies in the far northern part of the Erongo Region (Geological Survey of Namibia, 2012).

The Henties Bay area is characterised by the Damara Igneous Province which dates back 137-132 million years ago as depicted in **Figure 5** below. The dominant soils in these areas include limestone and sandstones. The subject site is very flat, having a downward slope of less than 1:100 from east to west and north-westerly (Mendelsohn et al., 2002). The subject Erf is located on the higher lying gravel plain to the south of the defined river embankment and resultantly does not fall within a flood prone area.

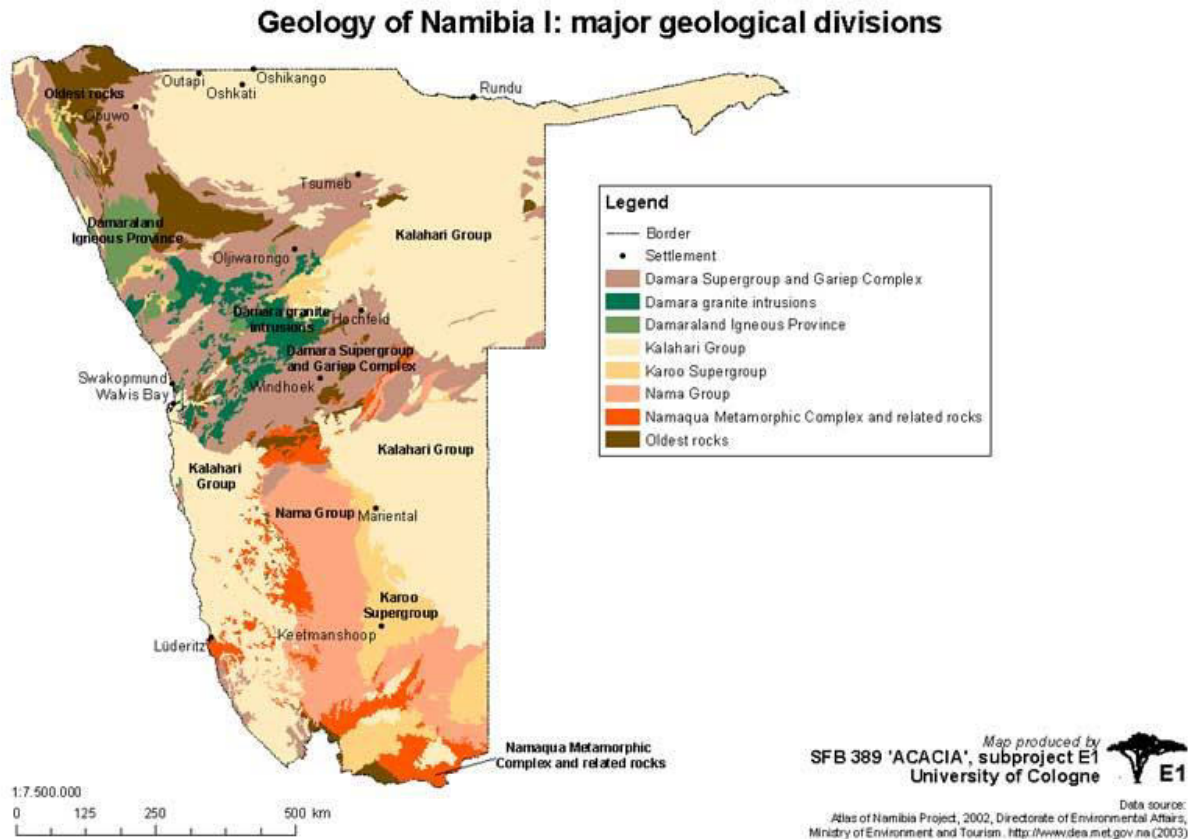


Figure 5: Geology of Namibia (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/physical/geology.jpg)

3.2.3 Hydrology and Hydrogeology

The Omururu River (**Figure 6**) is a major hydrological feature within the Erongo Region which flows into the Omdel dam. Back in the days, groundwater from the river basin has enabled water supply to the town of Henties Bay, until the recent commissioning of a desalination plant by Areva for its Trekkopje Uranium Mine, the coastal towns of Henties Bay, Swakopmund and Walvis Bay (As well as many other consumers) were entirely dependent on groundwater. However, since Areva has put its mine under “care and maintenance”, fresh water from the plant is forming part of the coastal water supply. The groundwater stored in the coastal aquifers of the Kuiseb, Swakopmund and Omaruru Rivers come from about 300 km inland at altitudes of about 2000 m. These ephemeral rivers rarely flow into the Atlantic Ocean, and only for short periods after substantial rain. In order to enhance the storage of water from flood, the Omdel Dam, situated about 35 km inland from the coast, was completed in 1994 on the Omaruru River (GCS, 2021).

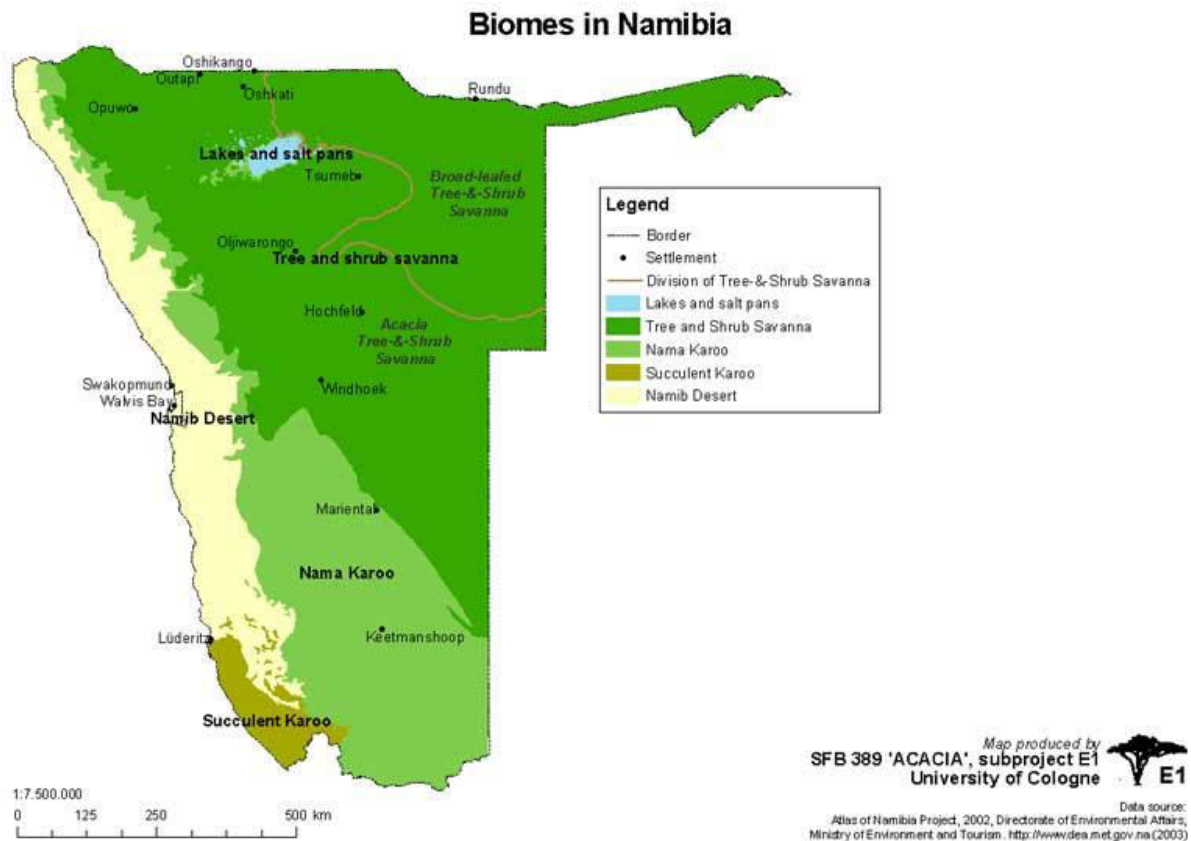


Figure 7: Biomes of Namibia (http://www.uni-koeln.de/sfb389/e/e1/download/atlas_namibia/pics/living_resources/biomes.jpg)

The central and southern areas of the site are sparsely vegetated (in terms of coastal desert environment) some vegetation can be found within the 50metre linear strip along the southern embankment of the Omaruru River where more sandy soil conditions are found. As such the proposed development has been set back by between 50m to 100m from the defined upper edge of the river embankment in an attempt to preserve the natural fauna and flora of the area.

Areas along the coast which boast high concentrations of lichen fields are areas of ecological significance and are thus to be protected. The lichen fields located north of Wlotzkasbaken have thus been declared as an Important Plant Area.

The Damara Tern breeding sites along the coast are considered to be areas of importance which need to be conserved.

The Namibian coast has several areas selected as Important Bird Areas which include the Cape Cross Lagoon, Walvis Bay, Sandwich Harbour, 30km beach: Walvis-Swakopmund (Simmons) to name a few.

4 PROJECT DESCRIPTION

4.1 PROJECT COMPONENTS

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

- **Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder;**
- **Rezoning of Erf B/1924, Hentiesbaai Extension 8 from “Cemetery” to “Parking”;**
- **Rezoning of Erf C/1924, Hentiesbaai Extension 8 from “Cemetery” to “Public Open Space”;**
- **Reservation of Erf RE/1924, Hentiesbaai Extension 8 as “Street”;**
- **Registration of a 15m wide Waterline Servitude against Erven C/1924 and Re/1924, Hentiesbaai Extension 8 in favour of Namwater;**
- **Inclusion of the rezonings in the next zoning scheme to be prepared for Henties Bay.**

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

4.2 ALTERNATIVES

As pointed out in Section 1.4 above various layout alternatives were initially considered by the proponent, ultimately resulting in the final layouts. 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. Thus, no positive changes in the layout of the Hentiesbaai Extension 8 would not be realized, therefore:

- The proposed Erf B/1924, Hentiesbaai Extension 8, which is to serve as “Parking” to solve the parking concerns of motor vehicle owners when attending gatherings at the cemetery would not be realized.
- The proposed Erf C/1924, Hentiesbaai Extension 8 which will accommodate the new NamWater pipeline to carry water from the reservoir to town for consumption by the residents of the Henties Bay town would not be realized.
- The proposed Re/1924, Hentiesbaai Extension 8 which is reserved for “Street” to serve the neighbourhood of Hentiesbaai Extension 8 and to provide convenient and efficient access to the C34 Main Road to Torrabaai from the neighbourhood would not be realized.

Thus, the no-go alternative is not considered to be the preferred option.

4.3 THE PROPOSED DEVELOPMENT

The proponent (Henties Bay Municipality) intends to subdivide Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder for the Namibia Water Corporation (Pty) Ltd (NamWater) to be able to re-place the existing water pipeline which currently runs across the Hentiesbaai Cemetery on Erf 1924, Hentiesbaai Extension 8 as it now lacks capacity and has reached the end of its life span. NamWater further intends to re-route the water pipeline and cancel the 20m wide Waterline Servitude registered against Erf 1924, Hentiesbaai Extension 8 in favour of NamWater as it currently limits the utilisation of land to full capacity. The water pipeline is to be redirected to run across the erf to be created southeast of Erf 1924, Hentiesbaai Extension 8, to allow for the maximum utilization of land.

In addition, the Municipality of Henties Bay has also resolved to utilise a portion of Erf 1924, Hentiesbaai Extension 8 which currently accommodates the NamWater pipeline for parking purposes once the pipeline has been successfully rerouted as intended by NamWater. The Municipality further intends to have the existing internal road which currently provides access to the cemetery formally extended and connected to the C34 Main Road to Terrace Bay, this can be seen in **Figure 8** and **Figure 9**.

In order to allow for the proposed development, the following statutory steps need to be undertaken:

- **Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder;**
- **Rezoning of Erf B/1924, Hentiesbaai Extension 8 from “Cemetery” to “Parking”;**
- **Rezoning of Erf C/1924, Hentiesbaai Extension 8 from “Cemetery” to “Public Open Space”;**
- **Reservation of Erf RE/1924, Hentiesbaai Extension 8 as “Street”;**
- **Registration of a 15m wide Waterline Servitude against Erven C/1924 and Re/1924, Hentiesbaai Extension 8 in favour of Namwater;**
- **Inclusion of the rezonings in the next zoning scheme to be prepared for Henties Bay**

4.3.1 The Subdivision

Erf 1924, Hentiesbaai Extension 8 which is currently zoned “Cemetery” and is being utilised as a “Cemetery” is to be subdivided into Erf A, B, C, and the Remainder as outlined in **Table 5** below and as depicted on the **Figure 8, Figure 9, and Figure 10** overleaf. The proposed Erf A/1924, Hentiesbaai Extension 8 will retain the current land use reservation for “Cemetery” in accordance with the Henties Bay Zoning Scheme.

Table 5: Subdivision outline for Erf 1924, Hentiesbaai Extension 8

Erf No	Current Zoning	±Area (m²)
A/1924	Cemetery	29687
B/1924	Cemetery	1708
C/1924	Cemetery	1547
RE/1924	Cemetery	4548
Erf 1924	Cemetery	37489

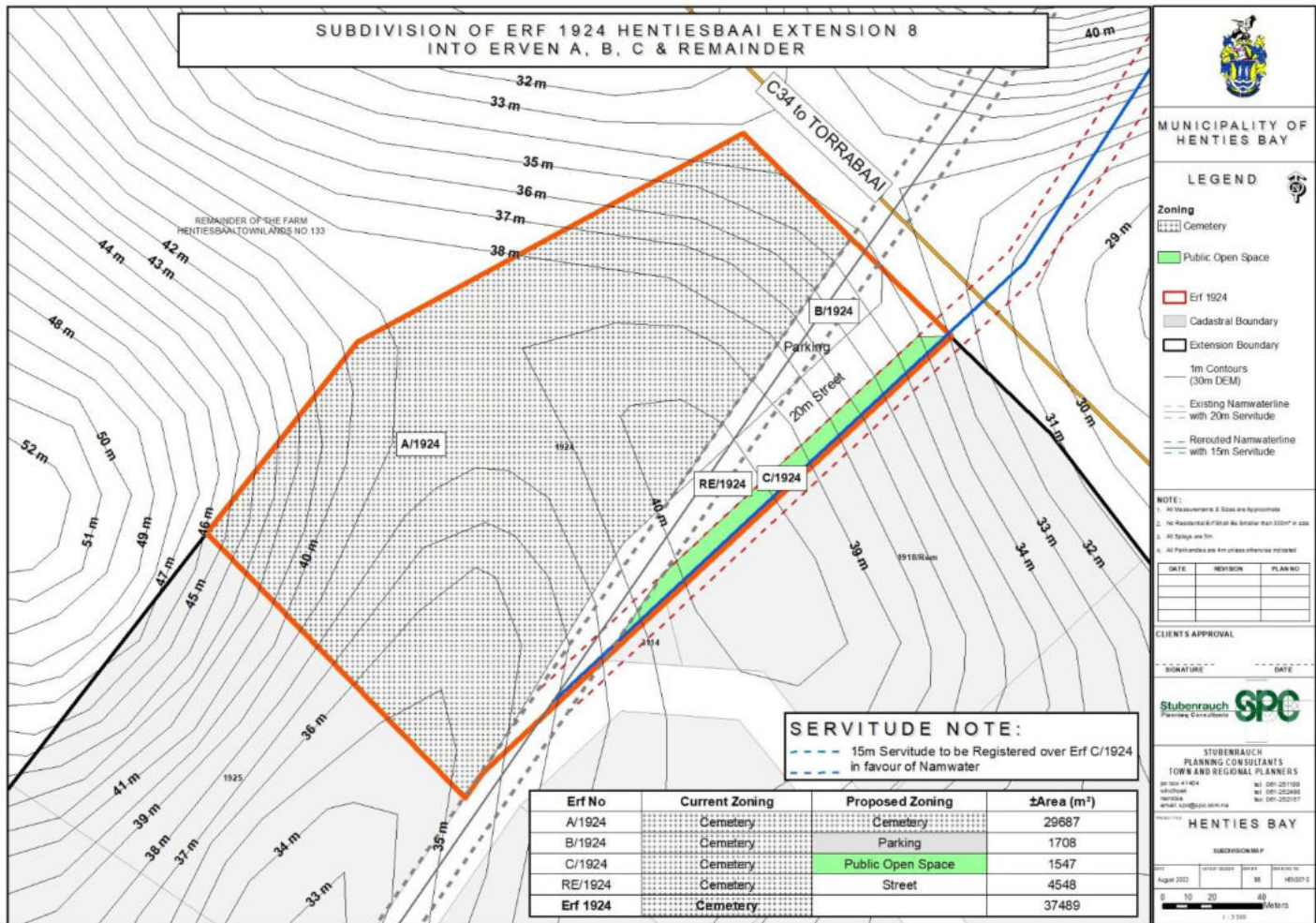


Figure 8: Subdivision of Erf 1924, Hentiesbaai Extension 8 into Erven A, B, C and Remainder.

4.3.2 The Rezoning

In accordance with the Henties Bay Zoning Scheme Erven B/1924, C/1924 and RE/1924 which are to be created through the subdivision of Erf 1924, Hentiesbaai Extension 8 are to be rezoned as follows:

- a) In accordance with the Henties Bay Zoning Scheme, the Erf B/1924, Hentiesbaai Extension 8 which is to be created through the subdivision of Erf 1924 Hentiesbaai Extension 8, is to be Rezoned from “Cemetery” to “Parking” to serve as a supporting land use to the existing “Cemetery” by providing secured space for motor vehicles whenever there are gatherings at the cemetery.
- b) In accordance with the Henties Bay Zoning Scheme, Erf C/1924, Hentiesbaai Extension 8 which is to be created through the subdivision of Erf 1924, Hentiesbaai Extension 8 is to be rezoned from “Cemetery” to “Public Open Space” to enable the erf to accommodate the NamWater Pipeline which is to be re-routed from the cemetery as proposed.
- c) The Remainder of Erf 1924, Hentiesbaai Extension 8 is to be reserved as a “Street”. The proposed “Street” will be 20 m wide and will provide access to the cemetery on Erf A/1924, Hentiesbaai Extension 8, the parking for the cemetery on Erf B/1924, Hentiesbaai Extension 8 as well as to the “Public Open Space” on Erf C/1924, Hentiesbaai Extension 8. The proposed “Street” will further connect the neighbourhood of Hentiesbaai Extension 8 to the now de-proclaimed C34 Road to Terrace Bay.

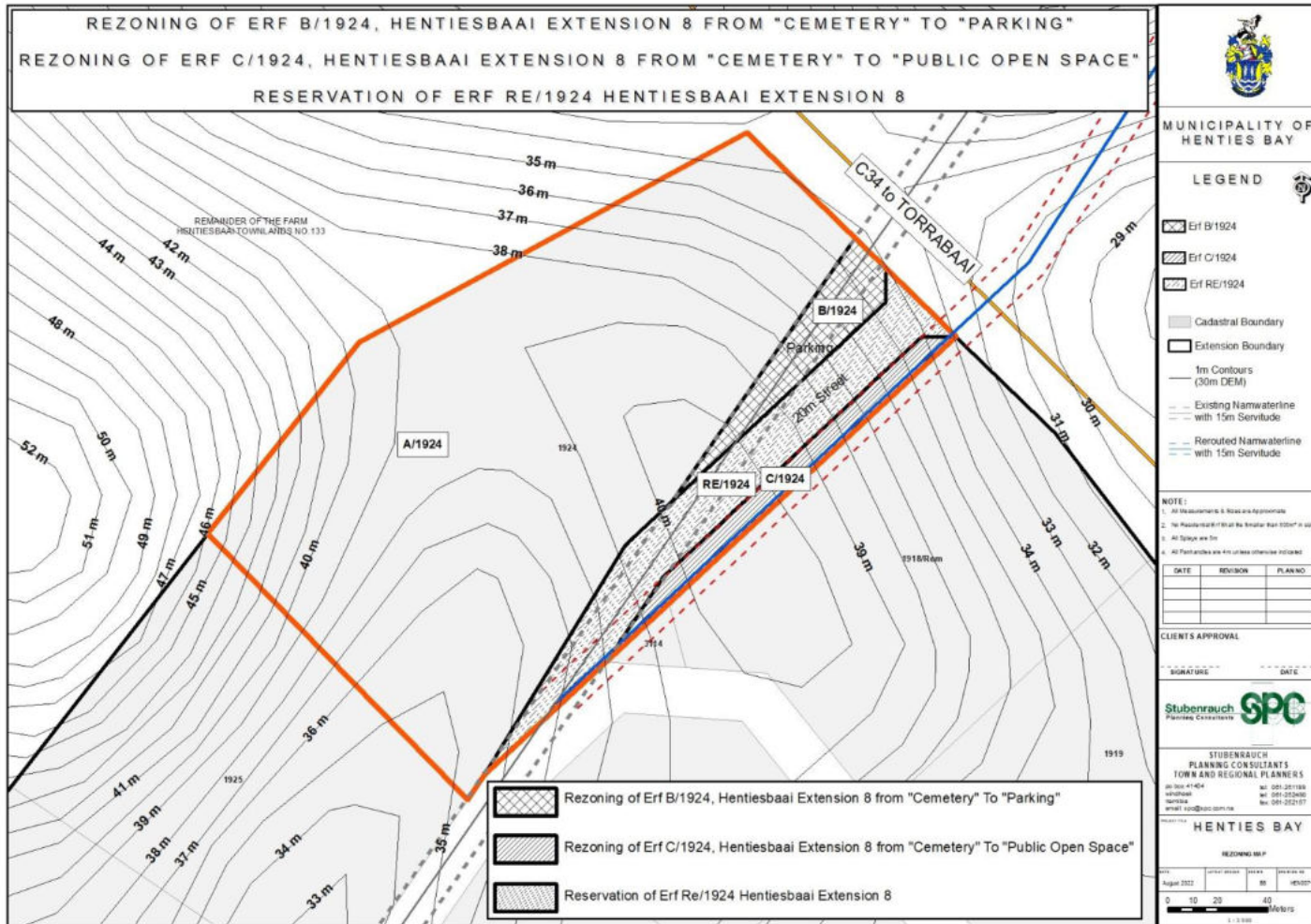


Figure 10: Rezoning and Reservation of the above-mentioned erven, Hentiesbaai Extension 8.

4.3.3 Engineering Services and Access Provision

4.3.3.1 Water, Electricity and Sewer

Erf 1924, Hentiesbaai Extension 8 is currently not connected to any municipal reticulation system of water, sewer and electricity that are provided by the Henties Bay Municipality as it is used as a burial site for human remains, which do not require the above listed municipal services. The proposed Erf A, B, C and the Remainder are envisioned for purposes that do not require the usage of municipal reticulation services and as such, no services will be extended to the proposed erven.

4.3.3.2 Storm Water Reticulation

Due to the area being very flat and very low rain occurrences are experienced at the town the sandy soils will absorb local ponding. Any stormwater run-off can however be channelled into the valley of the former Omaruru River.

4.3.3.3 Access Provision

Access to Erf 1924, Hentiesbaai Extension 8 is currently obtained from a 20m wide internal street network serving the neighbourhood of Hentiesbaai Extension 8. The proposed Erf A/1924, Hentiesbaai Extension 8 will retain its current access, whereas the proposed Erven B/1924 and C/1924, Hentiesbaai Extension 8 will gain their access from the proposed Erf Re/1924 which is to be extended to the C34 Road which has now been de-proclaimed as a Main Road (thus, no access approval from the Roads Authority is required).

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 6** below for the activities undertaken as part of the public participation process. The I&APs were given time to comment from **08 June 2023 to 29 June 2023**.

Table 6:Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notices/posters in Henties Bay	See Annexure A
Placing advertisements in two newspapers namely the Namibian and the New Era (8 June and 15 June 2023)	See Annexure B
Written notice to surrounding property owners and Interested and Affected Parties via Email (8 June 2023)	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 were informed of the availability of the DESR for public comment via a letter/email dated **27 July 2023**. An Executive Summary of the DESR was included in the letters to the registered I&APs. I&APs had until **10 August 2022** 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 6**.

Table 7: 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>

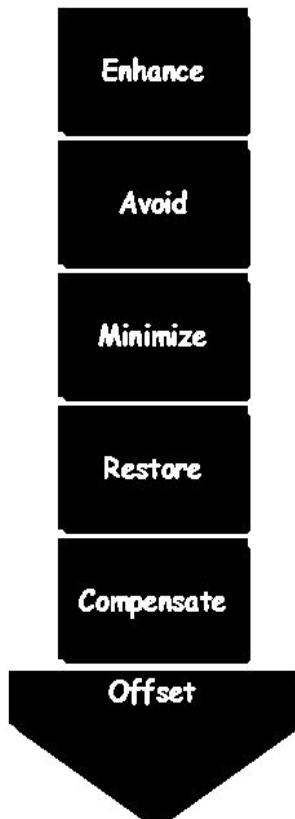
*NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.

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 11** 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.



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

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

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

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

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

Figure 11: 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 (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

7 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES

7.1 INTRODUCTION

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 4. These include potential impacts, which may arise during the operation of the proposed development (i.e. long-term impacts) as well as the potential construction related impacts (i.e. short to medium term). The assessment of potential impacts will help to inform and confirm the selection of the preferred layouts to be submitted to MEFT: 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 Existing Service Infrastructure Impacts

The proposed Erf A, B, C and the Remainder are envisioned for purposes that do not require the usage of municipal reticulation services and as such, no services will be extended to the proposed erven.

7.2.2 Traffic Impacts

The intended development may have an impact on traffic in the subject area as the site is currently mostly undeveloped. Once the proposed site is developed traffic in the area is expected to increase. The traffic is not expected to increase significantly as the subject site is in close proximity to an already developed area within the town.

7.3 CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

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

7.3.1 Flora and Fauna Impacts (Biodiversity)

As the project site is undeveloped there is sparse vegetation present on site. The vegetation present on site should be incorporated within the layout of the proposed development as far as possible. It is anticipated that the proposed development area and associated infrastructure (e.g. water, sewage, access route, etc.) would have localised negative implications on the environment and associated fauna and flora should the proposed mitigation measures as outlined in the EMP be enforced.

7.3.2 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 Henties Bay 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, 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

There may be a change in visual characteristics of the site particularly as the area is currently mostly undeveloped. The extent of this disturbance will depend on how highly the interested and affected parties valued the initial aesthetic quality of the site. The intended activities for the proposed site may alter the sense of place for the existing community and property owners situated in close proximity to the site, as well as the residents of Henties Bay who frequent the site.

7.5.2 Noise Impacts

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

7.5.3 Emission Impacts

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

7.5.4 Social Impacts

A small number of residents from Henties Bay could benefit from employment during Re-routing of Pipeling (Construction phase).

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 F** of this report. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the construction and decommissioning phases of the project to ensure that negative impacts associated with the development are avoided or mitigated.

7.8 SUMMARY OF POTENTIAL IMPACTS

A summary of all the potential impacts from the proposed project assessed above is included in **Table 7**. The **Tables 8 – 10** 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 8: 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. Existing Service Infrastructure	Hentiesbaai Extension 8	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
2. Biodiversity (Fauna and Flora)	Hentiesbaai Extension 8	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
CONSTRUCTION PHASE										
3. Biodiversity (Fauna and Flora)	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	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	Hentiesbaai Extension 8	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)

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. Employment Creation	Hentiesbaai Extension 8	No mitigation	Local	Neutral	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Neutral	Short term	Medium	Probable	Certain	Reversible	Medium (+)
	No go	No Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
14. Hazardous Substances	Hentiesbaai Extension 8	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
OPERATIONAL PHASE										
1. Visual & sense of place	Hentiesbaai Extension 8	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

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	Significance	Probability	Confidence	Reversibility	Cumulative impact
2. Noise	Hentiesbaai Extension 8	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
3. Emissions	Hentiesbaai Extension 8	No mitigation	Local	Medium-Low	Medium term	Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	Very Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
4. Social impact	Hentiesbaai Extension 8	No mitigation	Local	Medium	Long term	Medium	Probable	Probable	Reversible	Medium (+)
		Mitigation	Local	Medium	Long term	Low	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 9: Proposed mitigation measures for the planning and design phase

PLANNING AND DESIGN PHASE IMPACTS	
Impact	Mitigation Measures
Existing Service Infrastructure	<ul style="list-style-type: none"> • The proposed Erf A, B, C and the Remainder are envisioned for purposes that do not require the usage of municipal reticulation services and as such, no services will be extended to the proposed erven.
Traffic	<ul style="list-style-type: none"> • Ensure that road junctions have good sightlines. • Adhere to the speed limit. • Implement traffic control measures where necessary.

Table 10: 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. • 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.

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

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

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
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.
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.

CONSTRUCTION PHASE IMPACTS	
Impact	Mitigation Measures
	<ul style="list-style-type: none"> Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant.

Table 11: Proposed mitigation measures for the operational phase

OPERATIONAL PHASE IMPACTS	
Impact	Mitigation Measures
Visual and Sense of Place	<ul style="list-style-type: none"> As the pipeline will be located underground there are no requirements for mitigation measures during the operation of the proposed pipeline. 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.
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 8**, 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.

8.3 LEVEL OF CONFIDENCE IN ASSESSMENT

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this FESR is adequate to allow MEFT: 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 MEFT: DEAF could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: 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 mostly vacant and undeveloped. 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. 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: DEAF for consideration and decision making. If MEFT: DEAF approves, or requests additional information / studies all registered I&APs and stakeholders will be kept informed of progress throughout the assessment process.

9 REFERENCES

Mendelsohn, J., Jarvis, A., Roberts, C. & Roberston, T. 2002. Atlas of Namibia.

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Namibia Statistics Agency. 2011. Namibia 2011 Population & Housing Census - Main Report. 214. [Online], Available: http://www.nsa.org.na/files/downloads/Namibia_2011_Population_and_Housing_Census_Main_Report.pdf.