

## APPLICATION FOR ENVIRONMENTAL CLEARANCE:

**FOR THE CONSTRUCTION OF PUBLIC ROADS, INFRASTRUCTURE AND ACTIVITIES  
IN WATER COURSES WITHIN FLOOD LINES THROUGH TOWNSHIP ESTABLISHMENT  
AT KARIBIB**

**AN ENVIRONMENTAL SCOPING ASSESMENT**



### PROPONENT:

**KARIBIB TOWN COUNCIL**  
P O Box 19  
KARIBIB  
**NAMIBIA**

### CONSULTANT:

**URBAN DYNAMICS AFRICA**  
P O Box 20837  
WINDHOEK  
**NAMIBIA**

### SUBMISSION:

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM  
PRIVATE BAG 13306  
**WINDHOEK**  
NAMIBIA

REFERENCE: 1232  
ENQUIRIES: WILHELM SHEPYA  
HEIDRI BINDEMANN-NEL  
JOHANN OPPERMAN

TEL: +264-61-240300  
FAX: +264-61-240309

**DEVELOPMENT ROLE PLAYERS:**

**KARIBIB TOWN COUNCIL**

P O Box 19

**KARIBIB**

NAMIBIA



**DEVELOPMENT WORKSHOP NAMIBIA**

P O Box 40723

AUSSPANPLATZ

**WINDHOEK**

NAMIBIA

**DW**

Development Workshop Namibia

**PLANNING AND COMPILING OF THE SCOPING REPORT FOR THE ESTABLISHMENT OF TOWNSHIPS AT KARIBIB, PREPARED BY**

**WILHELM SHEPYA AND HEIDRI BINDEMANN-NEL**

**URBAN DYNAMICS AFRICA**

P O Box 20837

**WINDHOEK**

**NAMIBIA**



**GENERAL LOCATION DESCRIPTION OF THE DEVELOPMENT AREA:**

DESCRIPTOR:	LOCATION SPECIFICS:
NATURE OF ACTIVITIES:	The construction of public roads and the creation of infrastructures through Township Establishments.
REGION:	Erongo Region
LOCAL AUTHORITY:	Karibibi Town Council
FALL WITHIN:	Within the Remainder of the Farm Karabib No. 54 and Farm Karabib No. 56
NEAREST TOWNS / CITY:	Karibib
SIZE OF PTN 23 OF PTN 18	5.5 ha
SIZE OF PTN 24 OF PTN 18	17.9 ha
SIZE OF PTN 25 OF PTN 18	17.1 ha
SIZE OF PTN 26 OF PTN 18	17.1 ha
SIZE OF REMAINDER OF PTN 18	18.2 ha
SIZE OF PTN 5 OF FARM KARIBIB NO. 56	13.6 ha
ERF 332, USAB PROPER	6.7 ha
ERF 2, USAB PROPER	4.4 ha
LAND USE:	General Industrial
STRUCTURES:	Yes
HISTORICAL RESOURCE LISTINGS:	No
CEMETERY:	No
FLOODLINES:	Yes
ENVIRONMENTAL SIGNIFICANT AREA:	➤ Ephemeral rivers
LATITUDE:	-21.925465 S,
LONGITUDE:	15.855983 E
RELEVANT LISTED ACTIVITIES:	<p>The Environmental Management Act (Act 7 of 2007),</p> <p><b>Section 8.</b> Water Resource Developments;</p> <p>8.8. Construction and other activities in watercourses within flood lines;</p> <p>8.9. Construction and other activities within a catchment area;</p> <p><b>Section 10.</b> Infrastructure:</p> <p>10.1. The construction of-</p> <p>(b) public roads;</p> <p>10.2. Route determination of roads and design of associate physical infrastructure where-</p> <p>(a) public roads.</p>

<b>ABBREVIATION:</b>	<b>DESCRIPTION:</b>
am	ANTE MERIDIEM / BEFORE MIDDAY
Av	AVENUE
BID	BACKGROUND INFORMATION DOCUMENT
DEM	DIGITAL ELAVATION MODEL
e.g.	EXEMPLI GRATIA
EA	ENVIRONMENTAL ASSESSMENT
EC	ENVIRONMENTAL COMMISSIONER
ECO	ENVIRONMENTAL CONTROL OFFICER
EMP	ENVIRONMENTAL MANAGEMENT PLAN
ER	EMPLOYERS REPRESENTATIVE
Etc.	ET CETERA / OTHER SIMILAR THINGS
FRMP	FLOOD RISK MANAGEMENT PLAN
HIV	HUMAN IMMUNODEFICIENCY VIRUS
I&APs	INTERESTED AND AFFECTED PARTIES
i.e.	ID EST. / IN OTHER WORDS
KP	Knight Pièsold
NBD	THE NAMIBIA BIODIVERSITY DATABASE
NHC	NAMIBIAN HEALTH CARE
pm	POST MERIDIEM / AFTER MIDDAY
SME	SMALL-AND-MEDIUM-SIZED ENTERPRISE
TB	TUBERCULOSIS
TRRP	TREE REMOVAL AND REPLACEMENT PLAN
UDA	Urban Dynamics Africa
URPB	Urban and Regional Planning Board
WMP	WASTE MANAGEMENT PLAN
<b>UNIT SYMBOL:</b>	<b>UNIT DESCRIPTION:</b>
0°	DEGREES CELSIUS
E	EAST
ha	HECTARES
Km	KILOMETRE
m	METER
mm	MILLIMETRE
S	SOUTH
m <sup>2</sup>	SQUARE METERS
%	PERCENTAGE

**TABLE OF CONTENTS**

1	APPOINTMENT .....	1
2	BACKGROUND .....	1
3	PURPOSE OF THE REPORT .....	2
4	NATURE OF THE ACTIVITY .....	2
5	LEGISLATION .....	3
6	METHODOLOGY .....	5
6.1	SITE INFORMATION AND TOPOGRAPHY .....	5
6.2	NATURAL RECEIVING ENVIRONMENT .....	5
6.3	PUBLIC CONSULTATION.....	5
7	DESCRIPTION OF THE SITE .....	6
7.1	LOCATION OF THE SITES.....	6
7.2	OWNERSHIP, SIZES, and SHAPES OF THE PORTIONS.....	7
7.3	LAND USE ACTIVITIES .....	8
7.4	ACCESS AND UTILITY SERVICES .....	8
7.4.1	Road Access: .....	8
7.4.2	Water Connection:.....	8
7.4.3	Electrical Supply: .....	9
7.4.4	Sewerage: .....	9
7.5	CULTURAL RESOURCES.....	9
7.6	ENVIRONMENTAL CHARACTERISTICS AND TOPOGRAPHY.....	10
7.6.1	Natural Environment:.....	10
7.6.2	Topography and Flooding: .....	11
7.6.3	Habitats on Site: .....	12
7.6.4	Soil Conditions: .....	12
7.6.5	Climate, Wind Directions, and Rainfall: .....	12
7.7	STATUS OF PROTECTED AREA .....	13

7.8 SUMMARY OF THE HABITATION ON SITE ..... 13

8 THE PROJECT TOWNSHIPS ..... 14

8.1 FIRST LAYOUT DETAIL..... 14

8.2 THE STREET LAYOUT ..... 15

8.2.1 Provision for Drainage: ..... 15

9 POTENTIAL IMPACTS..... 16

9.1 SUMMARY OF POTENTIAL IMPACTS..... 16

9.1.1 Benefits of the Project: ..... 16

9.1.2 Potential Negative Impacts during Construction: ..... 16

9.1.3 Potential Negative Impacts during Operations: ..... 17

9.2 POTENTIAL IMPACTS ..... 17

9.2.1 Project Benefits: ..... 17

9.2.2 Negative Impacts during Construction: ..... 17

9.2.3 Potential Negative Impacts during Operations: ..... 18

9.3 DEALING WITH RESIDUAL IMPACTS ..... 18

9.3.1 Residual Social Impacts: ..... 18

9.3.2 Residual Environmental Impacts:..... 19

10 SUMMARY AND APPLICATION ..... 20

10.1 PROJECT IMPACTS, AVOIDANCE MEASURES AND RESIDUAL IMPACTS ..... 20

11 APPLICATION FOR ENVIRONMENTAL CLEARANCE..... 23

**FIGURES**

Figure 1:	The Locality of Karibib .....	1
Figure 2:	Public Meeting.....	6
Figure 3:	Locality of the Project Area .....	6
Figure 4:	Shapes of the Portions.....	7
Figure 5:	Site Activities .....	8
Figure 6:	Existing Council Water Points .....	8
Figure 7:	Electricity Poles and Streetlight on Portion 5 .....	9
Figure 8:	Showing the community toilet (left) and the water pipes (right) .....	9
Figure 9:	Vegetation .....	10
Figure 10:	1:50 and 1:20 Year Flood Lines .....	11
Figure 11:	Average High and Low Temperature .....	12
Figure 12:	The Proposed Layout .....	14
Figure 13:	Street Layout.....	15

**TABLES**

Table 1:	Portions Zonings and Size .....	7
----------	---------------------------------	---

**ANNEXURES**

- ANNEXURE 1:** FORM 1 APPLICATION FOR AN ENVIRONMENTAL CLEARANCE CERTIFICATE (SECTION 32)
- ANNEXURE 2:** CV (OF THE EAP)
- ANNEXURE 3:** CONTACT DETAIL OF THE PROPONENT
- ANNEXURE 4:** CONTACT DETAIL OF THE CONSULTANT
- ANNEXURE 5:** ENVIRONMENTAL MANAGEMENT PLAN

**APPENDIX**

- APPENDIX A:** CONSENT FROM MURD
- APPENDIX B:** LOCALITY PLAN
- APPENDIX C:** PUBLIC CONSULTATION PROCESS
- APPENDIX C.1:** NOTES AND ADVERTISEMENTS
- APPENDIX C.2:** BID DOCUMENT
- APPENDIX C.3:** COPY OF THE STAKEHOLDERS LIST
- APPENDIX C.4:** COMMUNITY MEETING MINUTES
- APPENDIX D:** MEETING MINUTES BETWEEN URBAN DYNAMICS AND MEFT
- APPENDIX E:** KP FLOODLINE STUDY
- APPENDIX F:** KARIBIB TOWN COUNCIL FLOODLINE APPROVAL



## 1 APPOINTMENT

Karibib Town Council, in partnership with the Development Workshop of Namibia (DWN), appointed Urban Dynamics to obtain Environmental Clearance for the

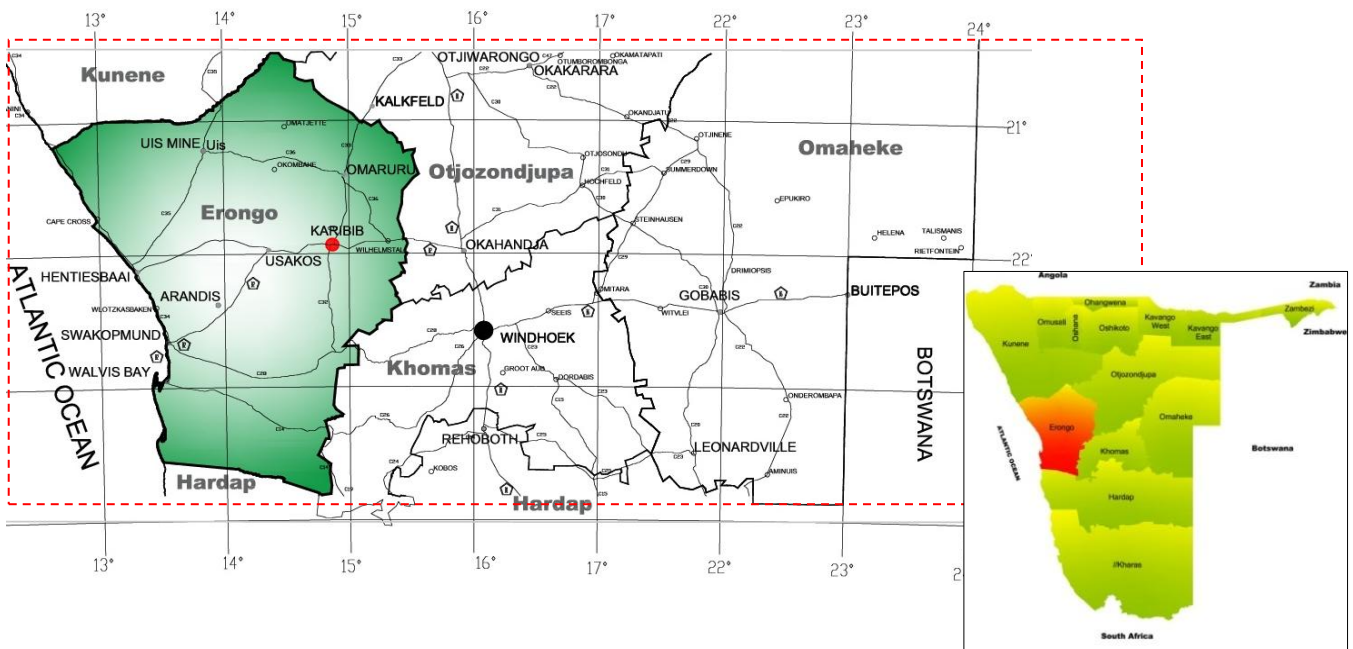
### **CONSTRUCTION OF PUBLIC ROADS, INFRASTRUCTURE AND ACTIVITIES IN WATERCOURSES WITHIN FLOOD LINES THROUGH TOWNSHIP ESTABLISHMENTS AT KARIBIB TO BE KNOWN AS USAB EXTENSIONS 6, 7, 8, 9, 10 AND 11.**

The relevant documentation are included in support of our application to the Environmental Commissioner, please refer to the appendices attached hereto.

## 2 BACKGROUND

Urban Dynamics and Karibib Town Council had a meeting to propose a Service Level Agreement due to the 3 outstanding layouts. Karibib Town Council suggested that Urban Dynamics Africa (UDA) draft layouts on the portions mentioned above due to the high demand for residential land in Usab. The layouts were drafted and consisted of 1 534 erven. The next step was for UDA to submit the layouts for approval to Karibib Town Council, and then the final step was to submit the final application to the Urban and Regional Planning Board (URPB).

**Figure 1: The Locality of Karibib**



For the purpose of obtaining approval from the Ministry of Urban and Rural Development through the Urban and Regional Planning Board, an Environmental Clearance Certificate must first be obtained from the Ministry of Environment, Forestry and Tourism.

### 3 PURPOSE OF THE REPORT

---

In terms of the Regulations of the Environmental Management Act (Act 7 of 2007), township establishment is not a listed activity. Although Section 27 of the Act lists land use and transformation of an area within which activities may be listed, the honourable Minister chose not to list township establishment as one such activity.

Urban Dynamics acknowledges that township establishment may, in some cases, have unacceptable environmental impacts, but those impacts are generally limited since it is mainly done to extend existing urban areas by way of laying out new erven on Townlands already earmarked for urban development. To ensure that there are no unacceptable or unmitigated environmental and social impacts, Urban Dynamics, as a matter of course, provides the Environmental Commissioner (EC) with a baseline report which will enable him to screen the project and determine if a clearance certificate can be issued or if a full assessment is required. Find attached a copy of the meeting minutes with the Environmental Commissioner wherein this modus operandi was agreed upon (**Appendix "D"**).

### 4 NATURE OF THE ACTIVITY

---

The purpose of the application is to obtain approval from the Ministry of Environment Forestry and Tourism in terms of

**Section 8.** Water Resource Developments-

- 8.8. Construction and other activities in watercourses within flood lines;
- 8.9. Construction and other activities within a catchment area;

**Section 10.** Infrastructure-

- 10.1. The construction of-
  - (b), Public roads;
- 10.2. Route determination of roads and design of associate physical infrastructure where-
  - (a), Public road.

This report documents the baseline information necessary to enable the Environmental Commissioner (EC) to screen this project and issue an Environmental Clearance Certificate in **Section 33 of the Environmental Management Act (Act 7 of 2007)**.

The report deals with the nature of the project, identifies the potential impacts that may be expected and the mitigation measures which will be implemented to deal with the impacts.

## 5 LEGISLATION

The following table provides the legislative framework against which the application should be assessed:

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
<p><b>THE CONSTITUTION OF THE REPUBLIC OF NAMIBIA, 1990:</b></p>	<p>The state shall actively promote and maintain the welfare of the people by adopting, inter-alia, policies aimed at the following:</p> <p>(i) <i>management of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all.</i></p>	<p>Ensure that the ecological integrity of the ecosystems of the area is protected.</p>
<p><b>ENVIRONMENTAL MANAGEMENT:</b></p>	<p><b><i>Environmental Management Act No.7 of 2007:</i></b></p> <p><b><i>EIA Regulation (EIAR) GN 57/2007 (GG 3212):</i></b></p> <p>In terms of Section 10.1(a), 10.1(b), 10.2(a), and 10.2(c) for environmental clearance for the construction of oil, water, gas and petrochemical and other bulk supply pipelines, the construction of public roads and the construction of a road with more than one lane of traffic in both directions.</p> <p>In terms of Section 8.8, 8.10 and 8.11, for construction and other activities in watercourses within flood lines, the reclamation of land from below or above the high-water and the alteration of natural wetlands are listed activities.</p> <p>Prescribes the procedures to be followed for authorisation of the project (i.e. Environmental clearance certificate).</p>	<p>Evaluate if the alignment of the street will impact the social and natural environment.</p> <p>Determine if the risk of flooding of the erven is at acceptable levels.</p> <p>Determine if the proposed limited infill would impact the function of the watercourse or cause flooding elsewhere.</p> <p>Determine how wastewater pipelines in the riverbed should be designed, constructed and maintained to prevent groundwater and other pollution.</p>

<p><b>WATER AND RESOURCES MANAGEMENT:</b></p>	<p><b><i>The Water Act No. 54 of 1956 and Water Resources and Management Act No.27 of 2007 Section 92:</i></b></p> <p>Section 92 (1), A person may not engage in any construction work or activity that causes or is likely to cause, the natural flow conditions of water in to or from a watercourse to be modified, unless the Minister has granted prior written approval for the work or activity to be carried out.</p> <p>Section 100 (e) consult with the regional Council or local authority in determining the geographic extent of flood plain areas in its region or local authority, as the case may be, and assist any such councils in regulating the development and use of land within floodplain areas</p> <p>Section 100 (f) prescribe measures for control and management of storm and flood risk within local authority areas.</p> <p>Section 101 (b) development on the banks of any wetland or dam; and</p> <p>Section 101 (c) the removal of rocks, sand or gravel or any other material from a watercourse.</p>	<p>Assess the potential risk that the planned activities may have on both the watercourse on the one hand and future occupants of the land on the other.</p>
<p><b>THE PUBLIC HEALTH AND HEALTH AND SAFETY REGULATIONS:</b></p>	<p><b><i>The Public Health Act 36 of 1919 as amended and the Health and Safety Regulations:</i></b></p> <p>These acts control the existence of nuisances such as litter that can cause a threat to the environment and public health.</p>	<p>Prevent activities that can have an impact on the health and safety of the public.</p>

## **6 METHODOLOGY**

---

The following section discusses the methodology used by UDA in assessing the site in terms of its strengths, weaknesses, opportunities, and threats and then formulate a planning approach to prepare a layout that harnesses the strengths, accommodates the weaknesses, utilise the opportunities and avoid the threats identified. These also include the natural and social environment within which the project is set.

### **6.1 SITE INFORMATION AND TOPOGRAPHY**

---

In terms of obtaining an accurate topographical base map, Urban Dynamics appointed a registered Land Surveyor to assist with a photogrammetric survey of Usab’s site in March 2021. Urban Dynamics used aerial photography, a 3D model, a topographical base map, and a Digital Elevation Model (DEM) for the site.

The site visit identified the existing buildings, trees, low-lying and environmentally sensitive areas, infrastructure, facilities, topography, and an understanding of how the settlement is currently functioning.

DWN appointed Knight Pièsold Consulting Engineers (KP) to conduct a Status Quo Floodline Assessment of the project site. KP created a 1 in 50 & 1 in 20-year floodline model using HEC-RAS 6.1 software to model a 2 Dimensional hydrodynamic numerical model of the project area's flood area, which was used to guide layout drafting.

### **6.2 NATURAL RECEIVING ENVIRONMENT**

---

The Urban Dynamics team conducted an environmental screening for the affected area in March 2021. The team used orthophoto analysis, a site visit, literature surveys and extensive experience in the region.

Data sources used include:

- Atlas of Namibia (Mendelsohn et. al, 2002);
- Draft Karibib Structure Plan (SPC, 2016); and
- Usab (Karibib) Status Quo Floodline Assessment (KP, 2021).

### **6.3 PUBLIC CONSULTATION**

---

Urban Dynamics launched a public consultation campaign to ensure that any person interested in the project will have an opportunity to register as a stakeholder. Urban Dynamics, the Karibib Town Council, and the Development Workshop of Namibia (DWN) held two meetings on the 27<sup>th</sup> of April 2021 at the Usab Community Center.

Figure 2: Public Meeting



## 7 DESCRIPTION OF THE SITE

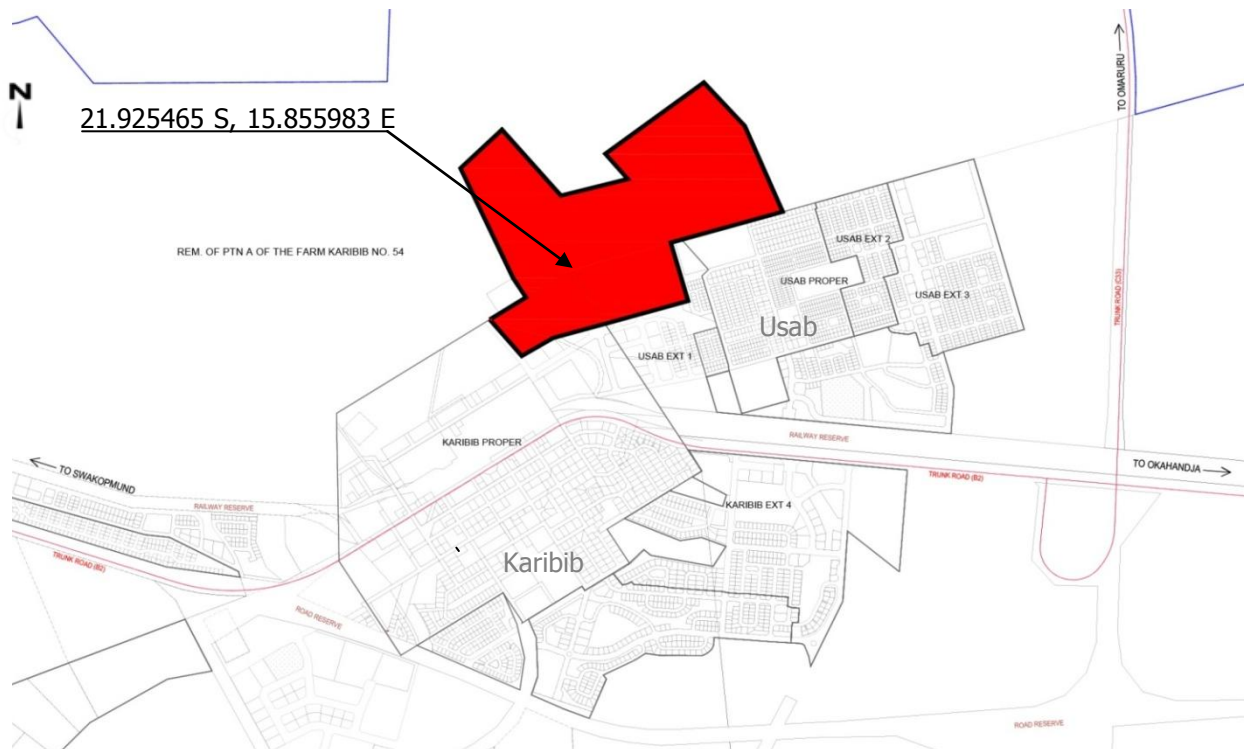
This section provides a planning description of the proposed project site relative to the surrounding urban areas, existing use and settlement, services and other infrastructure, topography, and other site features.

### 7.1 LOCATION OF THE SITES

The proposed development is located on Portion (PTN.) 23-, 24-, 25-, 26- Remainder of PTN. 18 of the Farm Karibib No. 54) (Extension 5-9), on PTN. 5 of Farm Karibib No 56 (Extension 10), Erf 2 and 332 Karibib Proper (Extension 11). The project falls within the Karibib Townlands and Erongo Region under Registration Division H.

The portions are north of Karibib Proper, next to Usab, Proper and Extension 1, at -21.925465 S, 15.855983 E. A locality plan is attached as **Appendix "B"**.

Figure 3: Locality of the Project Area





## 7.2 OWNERSHIP, SIZES, AND SHAPES OF THE PORTIONS

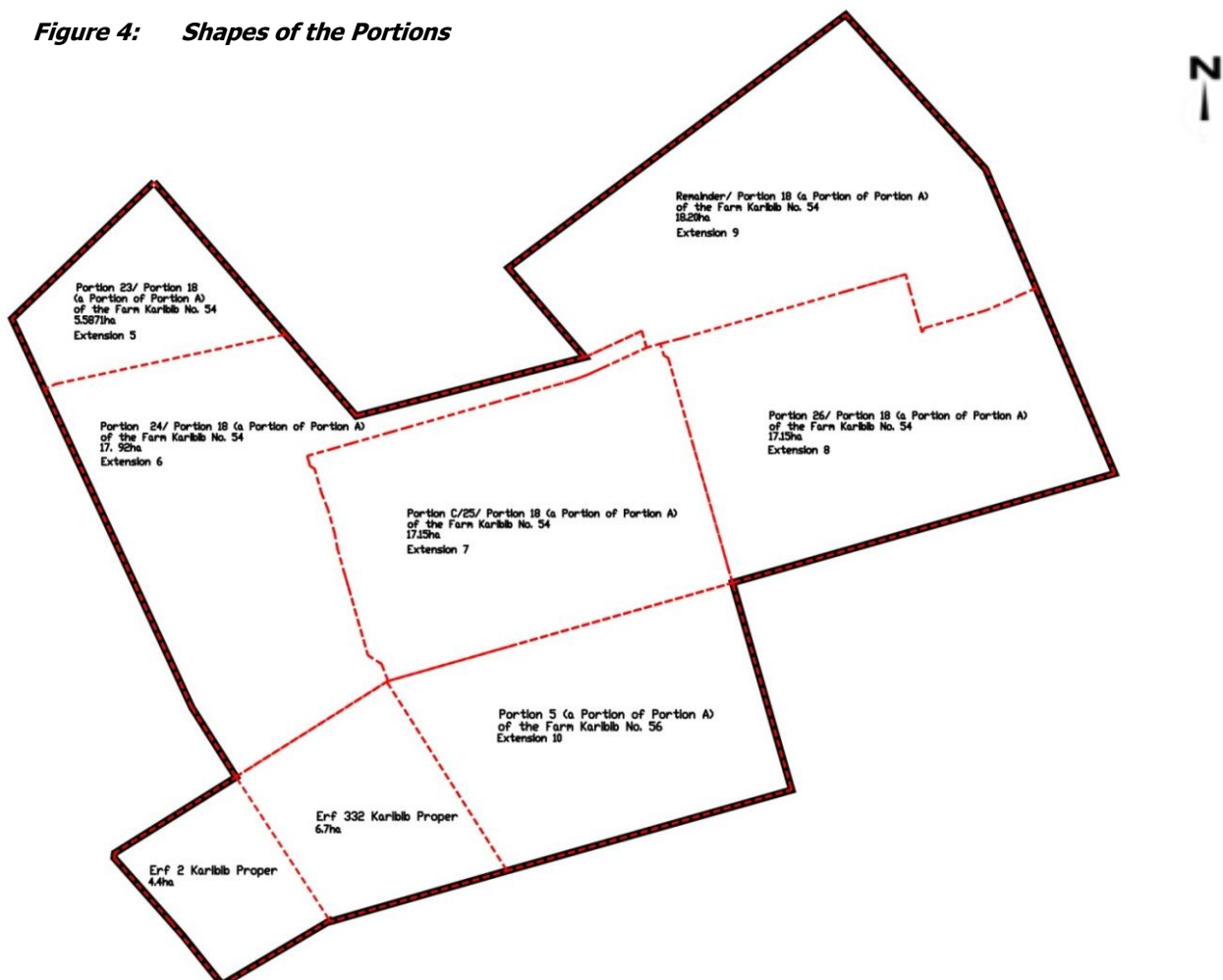
The Karibib Town Council is the registered owner of the area. According to the Town Council, the proposed development portions are currently zoned as “General Industrial”.

The project site measures approximately 96.4ha in extent and includes seven portions of land. **Figure 4** illustrates the shapes of the portions. **Table 1** provides each portion's size and zoning.

**Table 1: Portions Zonings and Size**

PORTIONS	AREA	ZONINGS
Portion A of Portion 23 of Portion 18 (a PTN of PTN A of the Farm Karibib No 54)	5.5	General Industrial
Portion A of Portion 24 of Portion 18 (a PTN of PTN A of the Farm Karibib No 54)	17.9	General Industrial
Portion A of Portion 25 of Portion 18 (a PTN of PTN A of the Farm Karibib No 54)	17.1	General Industrial
Portion A of Portion 26 of Portion 18 (a PTN of PTN A of the Farm Karibib No 54)	17.1	General Industrial
The remainder of Portion 18 (a PTN of PTN A of the Farm Karibib No 54)	18.2	General Industrial
Portion 5 of Farm Karibib No.56	13.6	General Industrial
Erf 332, Usab, Proper	6.7	General Industrial
Erf 2, Usab, Proper	4.4	General Industrial
<b>TOTAL:</b>	<b>96.4</b>	

**Figure 4: Shapes of the Portions**



---

### 7.3 LAND USE ACTIVITIES

---

Preveslay illegal structures were erected on the site by the community. In partnership with DWN, the council created a database of all the shack residents in the area. The residents on the databased were accommodated on larger portions of land, forming part of the proposed layout.

**Figure 5: Site Activities**



---

### 7.4 ACCESS AND UTILITY SERVICES

---

#### 7.4.1 Road Access:

The proposed sites currently access the road north of Karibib, Usab, Proper and Extension 1.

#### 7.4.2 Water Connection:

NamWater supplies bulk water to Karibib via the Swakoppoort reservoir. NamWater extracts raw water from the Swakoppoort dam, which is then pumped to Karibib and treated at a treatment plant in Karibib. Water within the town is supplied through the council's reticulated network (Draft Karibib Structure Plan, 2016).

Currently, the site has three water points. The water supply to the area will be from the council's reticulated network.

**Figure 6: Existing Council Water Points**





### 7.4.3 Electrical Supply:

---

A 66kV overhead powerline supplies Karibib by ErongoRED, terminating at the Karibib 66/11kV, 2.5 MVA substation (WCE, 2015).

The development site is to be supplied from Karibib’s reticulated network through the nearby Usab, Extension 1.

**Figure 7: Electricity Poles and Streetlight on Portion 5**



### 7.4.4 Sewerage:

---

Karibib is served by a sewerage system consisting of a collection network and pump stations that send sewerage to oxidation ponds located North-west of the site.

**Figure 8: Showing the community toilet (left) and the water pipes (right)**



## 7.5 CULTURAL RESOURCES

---

No graves were identified on the site, and no other items of historical value were found or could be identified within the development site boundaries.

7.6 ENVIRONMENTAL CHARACTERISTICS AND TOPOGRAPHY

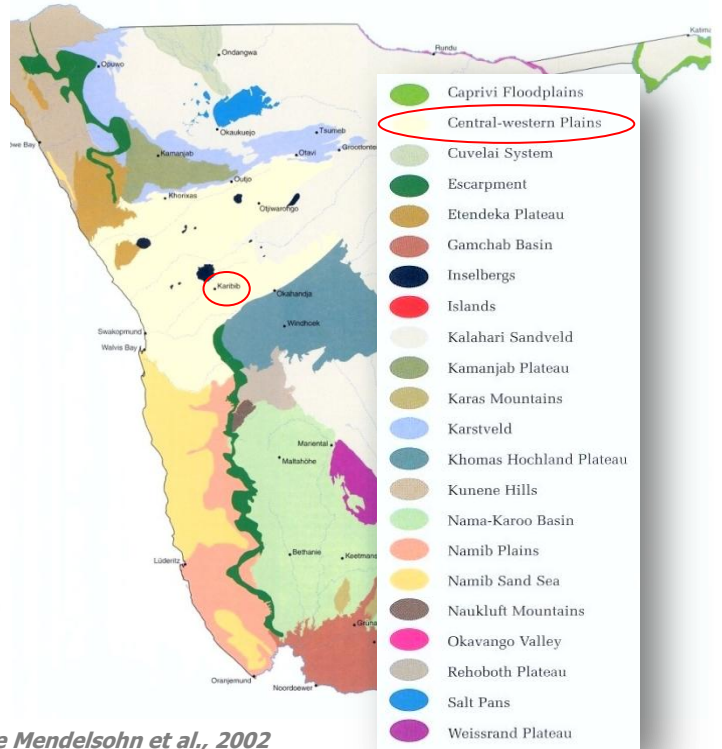
7.6.1 Natural Environment:

Karibib is located within the Central–Western Plains'and forms part of the Higher Inland Plateau, which is part of the Khomas Hochland and Karibib catchment area. Minor ephemeral rivers within the catchment area flow into the Khan River, flowing into the Swakop River.

Figure 9: Vegetation

According to Mendelsohn et al. (2002), the Karibib area's vegetation comprises of the Western Highlands Vegetation. The vegetation consists mainly out of sparse shrubland that includes grasslands and scattered trees.

The dominant vegetation type in this biome is acacia reficiens, euphorbia geuerichiana, colophospermum mopane, maerua schinzii, and ademolobius garipensis (Mendelson et al., 2002).



Source Mendelsohn et al., 2002

Due to the illegal clearing of vegetation for the shacks construction, minimal significant low-level vegetation remains in the area. Scattered larger trees have been left intact, as is the custom. No large wild mammals are resident within the project area.

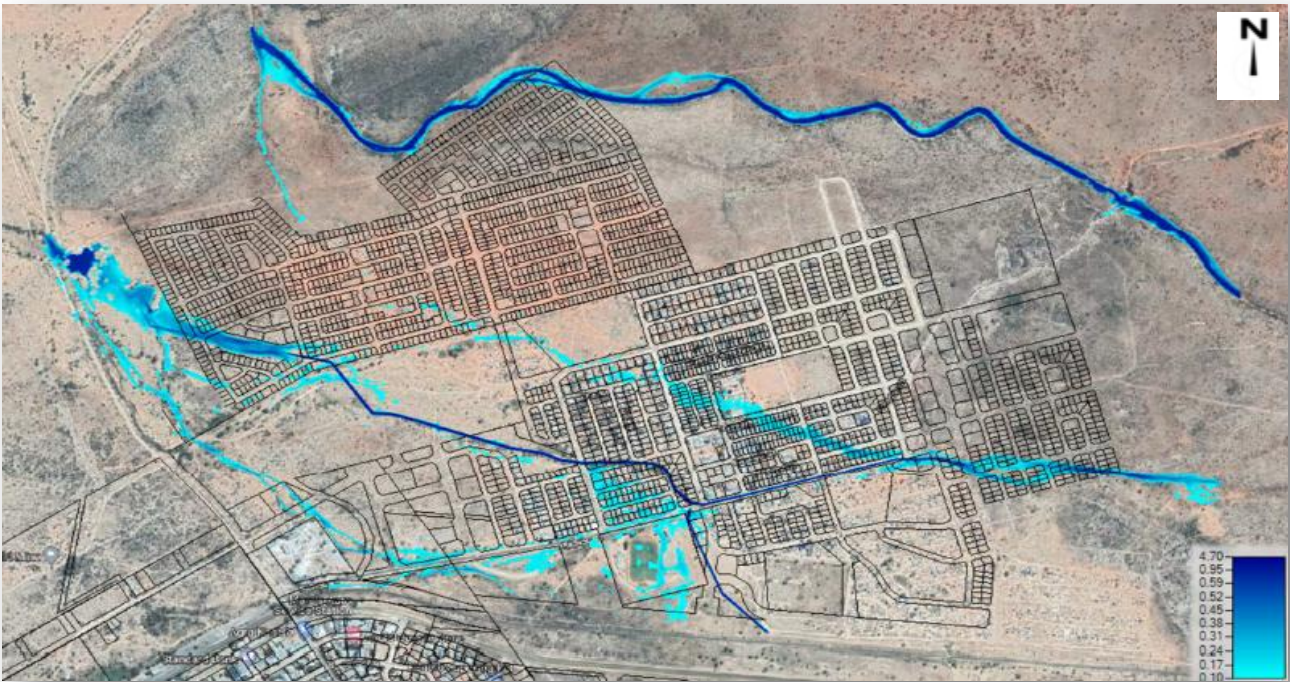


### 7.6.2 Topography and Flooding:

Four ephemeral streams flow through the project site. Drainage at the site is from northeast to north or east to northwest, towards lower areas. The streams are highlighted in light blue on the image overleaf. A downward slope of 1.50 m characterises the site’s topography.

**Figure 10: 1:50 and 1:20 Year Flood Lines**

#### 1:50 Year Flood Lines



#### 1:20 Year Flood Lines



Source Knight Piesold (Consulting Engineers, 2021)

**7.6.3 Habitats on Site:**

Habitat on the site area is ecologically degraded, and parts of the site are no longer pristine and are not fully functional at an ecosystem level. The ecosystem's degradation is due to increased illegal shacks on the site, which can be best described as a growing urban area.

**7.6.4 Soil Conditions:**

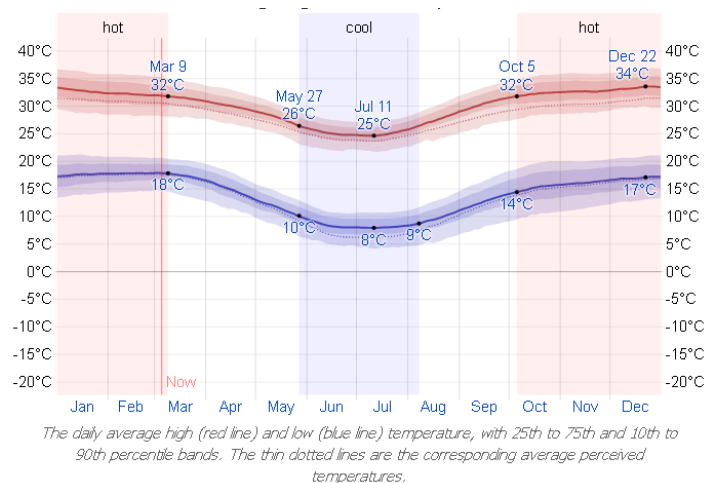
Karibib falls within the Swakop Group (Schists) and forming the Karabib Formations (Mendelsohn et al., 2002).

The Karibib Formation consists of an interbedded succession of dark grey marble, ribbon marble made up of thin alternating layers of light and dark grey marble, sedimentary marble breccias, grey phyllitic dolomite and laminae of calc-silicate rock (Steven et al.,1994).

**7.6.5 Climate, Wind Directions, and Rainfall:**

Karibib has a semi-desert climate, characterised by an extensive range of temperatures, low rainfall, and high evaporation. The hot season lasts for 5.1 months, from October 5 to March 9, with an average daily high temperature above 32°C. The cool season lasts for 2.4 months, from May 27 to August 7, with an average daily high temperature below 26°C.

**Figure 11: Average High and Low Temperature**



Source Weather Spark, 2021

Karibib had an annual average rainfall of 224mm recorded between 1967 and 1983 and 180mm between 1980 to 2002, and between 2008 and 2010, 215mm (Kondiri, 2015). The Karibib area's relative humidity during winter months is anything between 30 to 40%, while during summer months, it can rise to between 60 to 70%.

The average sunlight each day at Karibib is 10 hours. However, the town is located near the coast and forms part of the fog belt, which means Karibib can receive fog for five days annually (SPC, 2016).

The prevailing wind direction at Karibib is south-west and the minimum speeds recorded are 15 km/hour (Mendelashon et al., 2002).

## **7.7 STATUS OF PROTECTED AREA**

---

The site itself has no protected status. However, the ephemeral rivers, 1 in 50 and 1 in 20-year flood areas, are environmentally sensitive. Urban Dynamics should accommodate the streams and flood areas within public open spaces.

## **7.8 SUMMARY OF THE HABITATION ON SITE**

---

Due to the illegal clearance of land and population density at Karibib, extensive habitat alteration occurred. The site is ecologically degraded and no longer pristine, and is not fully functional at the ecosystem level. It may be best described as a highly impacted urban ecosystem and is not a natural environment.

Key environmentally relevant features show that:

- ❖ The development area is located at -21.925465 S, 15.855983 E, north of Karibib Proper, next to Usab, Proper, and Extension 1;
- ❖ Activities on the site include informal structures with little or no infrastructure;
- ❖ Karibib has a semi-desert climate, characterised by an extensive range of temperatures; low rainfall, and high evaporation;
- ❖ No significant low-level vegetation remains in the area but scattered larger trees, and no large wild mammals are resident within the development site;
- ❖ The prevailing wind direction at Karibib is south-west and the minimum speeds recorded are 15 km/hour;
- ❖ No graves were identified on the site, and no other items of historical value were found or could be identified within the development site boundaries; and
- ❖ Four ephemeral streams flow through the project site and need to be accommodated within public open spaces.

The screening process showed no significant biodiversity-related issues for the current development, and there are no aspects that require further investigation. The layout should consider the minor ephemeral streams and the scattered trees in the area, and, where necessary, apply for permits for these to be moved. It is recommended that the development proceeds without the need for further assessment, as provided for under articles 33 and 34 of the Environmental Management Act.



## 8 THE PROJECT TOWNSHIPS

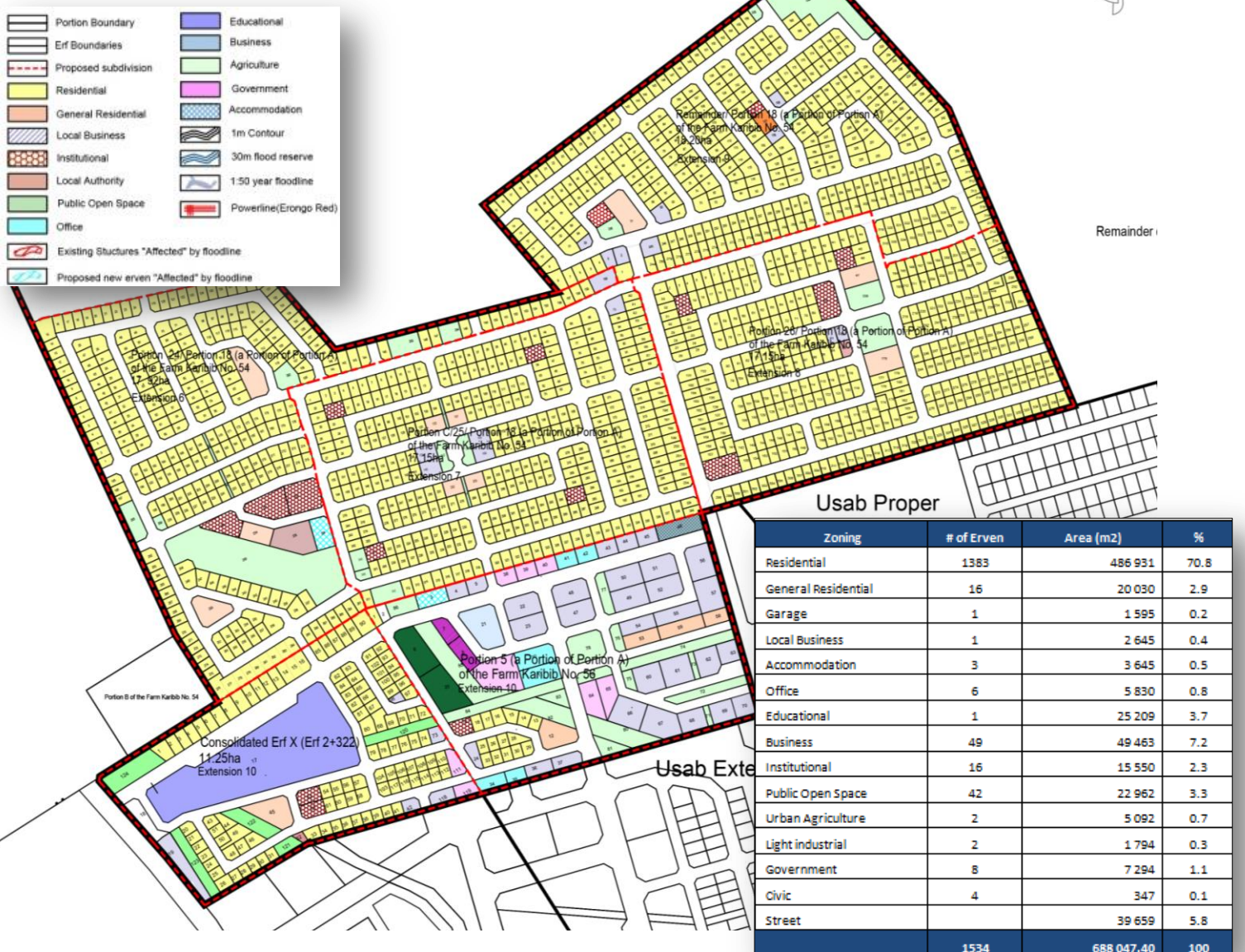
The client intends to establish new township extensions on PTN-23/8, PTN-24/8, PTN-25/8, PTN-26/8, Rem/18, PTN 5/56, Erf 2, and lastly, Erf 332 (Extension 5-11). The townships will consist of mixed-use neighbourhoods, thereby meeting the rising demand for housing and business plots within Usab at Karibib and the Erongo Region.

### 8.1 FIRST LAYOUT DETAIL

The first layout alters the current zonings of the portions from General Industrial to include Residential-, Institutional-, Business plots and Public Open Spaces. The layout's locality, shapes and sizes are illustrated in **Figure 13**.

**Table 11** summarise the detailed land-use allocation on the portions, while the layout's mitigated detail is discussed afterwards.

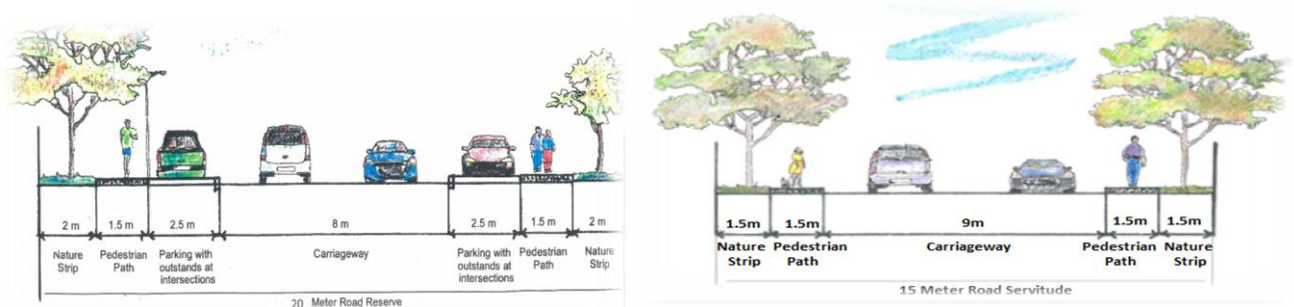
**Figure 12: The Proposed Layout**



## 8.2 THE STREET LAYOUT

The layout has 14 (six) entry points, of which one (1) access points link to an already existing 20m distributor road. The layout has various types of roads: 13m collector road (light blue) connects with the 15m distributor roads (blue), which leads into the 20m distributor roads (dark blue) to assure adequate flow in the settlement.

**Figure 13: Street Layout**



### 8.2.1 Provision for Drainage:

Stormwater Drainage should be designed, and culverts and bridges will be used to accommodate the flow of the water.



## 9 POTENTIAL IMPACTS

---

During the course of preparing the Karibib layouts, the team continuously assessed the potential positive and negative impacts of the project. Attempts have been made to enhance and strengthen positive impacts and mitigate and weaken the effects of negative impacts in all cases. The planners made several alterations to the plan until they were satisfied that the layout had been refined to the point where it limits risks, mitigates negative impacts and enhances positive impacts to as great an extent as possible. The following section explores each of these impacts in detail, describing and exploring the various ideas integrated into the layout and assessing alternatives where they seem viable.

The section also explores positive impacts that are not fully addressed by the layout. Many influences may be transitory in nature (for example, occurring only during the project's construction phase) or unavoidable given the site constraints and the need for maximising long-term benefits overall. These impacts and strategies for dealing with them are discussed here, but given that this document is an application for environmental clearance, the measures dealing with their mitigation/enhancement are dealt with in detail in the EMP.

---

### 9.1 SUMMARY OF POTENTIAL IMPACTS

---

The planning of the layout, together with the upgrading of bulk infrastructure and alignment of roads, has the potential to cause environmental and social impacts. The following is a list of potential impacts identified through the scoping process:

---

#### 9.1.1 Benefits of the Project:

---

- Provision for serviced erven;
- Stimulation of economic development and providing new employment opportunities during construction; and
- Stimulation of the health and wellness of the Karibib/Usakos and the Erongo Region.

---

#### 9.1.2 Potential Negative Impacts during Construction:

---

- Impact of removal of vegetation from the site;
- Impact of dust;
- Impact of noise;
- Impact on traffic flow;
- Impact on the health and safety of workers; and
- Impact of waste.



### 9.1.3 Potential Negative Impacts during Operations:

---

- Potential flooding; and
- Impact of waste during operation.

## 9.2 POTENTIAL IMPACTS

---

### 9.2.1 Project Benefits:

---

- **Provide for serviced erven.** The communities will now have access to adequately planned erven with specified erf boundaries. This will lead to residents having formal and permanent occupation of land and security of tenure. The layouts process creates a formal development framework, which would prevent uncontrolled settlement growth and address the current uncontrolled developments.
- **Stimulate employment creation and local economic development.** The development will lead to employment creation during the construction and operation phases. It will render services within the formal economy of Karibib, employ staff, contribute to rates and taxes and spend money within the same economy.
- **Stimulate health and wellness within the Karibib Townlands.** The layout makes provision for much-needed service connections that are safe and in line with the layout. It will also create properly aligned roads which will ease traffic circulation within the township. Clearly defined routes will allow for the provision of pedestrian infrastructure, creating a safe walking environment. Two erven are included within the layout to include a clinic and community sports grounds.

### 9.2.2 Negative Impacts during Construction:

---

- **Impact of the removal of trees from the site.** The planner prepared the layout in such a way as to avoid the removal of large trees. Trees within the project site will remain intact as far as possible during the alignment of the roads.
- **Impact on traffic flow during construction.** Construction vehicles would need to haul the excavated soil to a disposal site and provide building material and other supplies (i.e. fuel etc.) to the construction site, most of which could be delivered to the site by truck. Construction vehicles are most likely to pass in close proximity to erven and disrupt traffic flow near Extension 2 (although the exact access routes to the site are yet to be defined).
- **Impact of dust.** The movement of construction vehicles on bare soil will cause excessive dust, which will expose the community and workers to dust pollution and

affect their health. Preventative measures need to be put in place on the site to prevent excessive dust.

- **Impact of potential construction noise.** Construction machinery creates substantial noise, and this will impact the surrounding community. Constant noise can cause stress and health impacts on nearby residents.
- **Impact of construction waste.** Solid waste is the expected major source of waste at the construction site. If no waste management plan is in place to address the disposal of general and hazardous waste at the site, it can lead to water and soil pollution on the site and/or within the water areas.
- **Impact on the health and safety of workers and nearby residents.** Construction activities always have potential risks for workers and nearby residents. Inadequate site management measures can expose workers and residents living near the site to hazardous chemicals, dust, and noise. A lack of notices and signs within the area where deep excavation work is done can put the lives of residents and workers in danger.

---

### **9.2.3 Potential Negative Impacts during Operations:**

---

- **Potential flooding.** During the public meeting, erven within the first layout was identified as potential flood risk areas. Suppose these erven are left as residential erven. In that case, it can impact people and property during flooding periods.
- **Impact of operational waste.** Solid household waste is the expected major source of waste at townships. Suppose Karabib Town Council has no waste management plan (WMP) or waste removal plan (WRP) to address general and hazardous waste disposal at Usab. In that case, it can lead to soil pollution on the site and/or within the water areas.

---

## **9.3 DEALING WITH RESIDUAL IMPACTS**

---

### **9.3.1 Residual Social Impacts:**

---

Residual social impacts through this project could be elaborated on as follows:

Ilegal shacks will be affected by the planning of the layouts. As indicated above, DWN and the council created a database of all the shack residents to relocate, according to the Karibib Town Council (2019).

The owners of these structures are aware that they are within the townlands and will need to make way for future development.

### 9.3.2 Residual Environmental Impacts:

---

Residual environmental impacts through this project could be elaborated on as follows:

- The development project will create dust and noise during the construction phase. However, this will be limited, and a method to limit it is contained in the Environmental Management Plan (EMP).
- The project development will have an impact on traffic during the construction phase. To minimise the increase in transportation during the construction phase, mitigation measures to manage the vehicles on the construction site when services are included in the EMP provisions.
- Solid waste is the expected major source of waste at the construction site. Mitigation methods are contained in the EMP regarding a WMP for the construction site.
- During the construction phase, there will be a potential impact on the workers' health and safety due to their work environment. This will be limited, and methods to restrict it are contained in the EMP.
- Not all trees can be protected within the layout; thus, before construction commences, a Tree Management Plan (TMP) should be compiled. Mitigation methods are contained in the EMP regarding the TMP and required permits to remove protected trees.
- Potential flood risk areas were identified within the first layout. The planner amended the layout to accommodate impacted erven within public open space. In addition, the Karibib Town Council resolved via Council Resolution No: CM/0001/24/02/2022 to implement the flood mitigation measure presented to them by Urban Dynamics. Please find attached **Appendix "F"** flood mitigation measure approval.
- Solid household waste is the expected major source of waste in the new Usab townships. Mitigation methods are contained in the EMP regarding the removal of waste within Karibib.

## 10 SUMMARY AND APPLICATION

### 10.1 PROJECT IMPACTS, AVOIDANCE MEASURES AND RESIDUAL IMPACTS

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
<b><i>Stimulate local economic development and create employment opportunities:</i></b>			<p>During the development phase, the construction company will render service within the formal economy, employ staff, pay rates and taxes and spend money all within the same economy.</p> <p>Emphasis must be placed on the requirement and employment of local people.</p>	
<b><i>Providing serviced residential erven:</i></b>			<p>The project will lead to a formal and permanent land occupation, tenure security, access to capital and partaking in the economy, and ultimately to wealth creation in the operational phase.</p>	
<b><i>STIMULATE THE HEALTH AND WELLNESS OF THE COMMUNITY:</i></b>			<p><b>THE DEVELOPMENT:</b></p> <p>Provide for pedestrian infrastructure.</p> <p>Provide an erf for a clinic.</p> <p>The development is also situated walkable distance from the town centre, schools and health facilities within Usab.</p> <p>Provide formal and permanent occupation of land and the security of tenure.</p>	

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
<b>POTENTIAL REMOVAL OF EXISTING TREES:</b>	Avoid the removal of existing trees.	<p>The EMP mitigation measures for protecting trees on the site include:</p> <ul style="list-style-type: none"> <li>- Trees need to be accommodated within individual erven or the road reserves.</li> <li>- A Tree Management plan need to be compiled before the development comments.</li> </ul> <p>The timeline for the potential impact is short term, and the responsibility lies with the planner and contractor.</p>		<p><i>The planners could not accommodate all the trees on the site. Therefore, medication measures are included in the EMP.</i></p>
<b>POTENTIAL DUST AND NOISE ON THE CONSTRUCTION SITE:</b>	Avoid dust and noise during the construction phase.	<p>The EMP mitigation measures for</p> <p><b>Dust:</b></p> <ul style="list-style-type: none"> <li>• No removal of vegetation or soil on the site except where necessary during the construction phase.</li> </ul> <p><b>Noise:</b></p> <ul style="list-style-type: none"> <li>• Construction work will be restricted between 07h00 and 18h00.</li> </ul> <p>The timeline for the potential impact is short term, and the responsibility lies with the contractor and the Karibib Town Council.</p>		<p><i>Not all the dust and noise can be prevented.</i></p>
<b>POTENTIAL IN AN INCREASE IN TRAFFIC DURING THE CONSTRUCTION PHASE:</b>	Avoid an uncontrolled increase in traffic during the construction	<p>The EMP mitigation measures for traffic at the site include:</p> <ul style="list-style-type: none"> <li>• <b>Traffic</b> during the construction phase will</li> </ul>		<p><i>An increase in traffic can be managed. However, the</i></p>

	phase.	<p>be restricted between 07h00 and 18h00.</p> <p>The timeline for the potential impact is short term, and the responsibility lies with the contractor and the Karibib Town Council.</p>		<p><i>increase in traffic will still have a potential impact on residents.</i></p>
<b>HEALTH AND SAFETY OF WORKERS:</b>	<p>Avoid health and safety impacts on workers during the construction phase.</p>	<p>The EMP mitigation measures for the health and safety of workers at the site include:</p> <ul style="list-style-type: none"> <li>• Proper construction practices and safety procedures need to be applied.</li> </ul> <p>The timeline for the potential impact is short term, and the responsibility lies with the contractor.</p>		<p><i>Not all the health and safety aspects of the workers can be prevented.</i></p>
<b>FLOODING</b>	<p>Avoid flood risk.</p>	<p>The planner accommodated all the potential flood areas within public open space.</p> <p>Management of the public open space needs to include maintenance of the public space during the operational phase.</p> <p>The potential impact timeline is long-term term, and the responsibility lies with the Karibib Town Council.</p>		<p><i>Not all impacts as a result of flooding can be prevented.</i></p>
<b>WASTE MANAGEMENT</b>	<p>Avoid pollution as a result of no waste management.</p>	<p>The EMP mitigation measures for the waste on the construction site and during operations include:</p> <ul style="list-style-type: none"> <li>• During the construction phase, a waste management plan needs to be used on the site.</li> </ul>		<p><i>Not all pollution can be prevented</i></p>

		<ul style="list-style-type: none"> <li>• During the operational phase, the townships need to be included in the Karibib Town Councils' waste management system or program.</li> </ul> <p>The potential impact timeline is short-term during construction and long-term during operations.</p> <p>The responsibility lies with the contractor and the Karibib Town Council.</p>		
--	--	--	--	--

**11 APPLICATION FOR ENVIRONMENTAL CLEARANCE**

Given these baseline investigation findings, there are no current future environmental impacts and future identified due to creating the street portions or the construction activities within the Karibib area.

It is recommended that the development proceeds without the need for further assessment, as provided for under articles 33 and 34 of the Environmental Management Act. The application form for an Environmental Clearance Certificate as per Section 32 is attached as Annexure "1" to this Scoping Report.