

# **ENVIRONMENTAL SCOPING ASSESSMENT**

## **ROTSVESTING EXTENSION 4 & 5 (KAMANJAB)**

### **ENVIRONMENTAL SCOPING REPORT**

**OCTOBER 2022**



# PROJECT INFORMATION

Project Title: **ROTSVESTING EXTENTION 4 AND 5**

Type of Project: **ENVIRONMENTAL SCOPING ASSESSMENT**

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KAMANJAB NO. 190, KAMANJAB VILLAGE – KUNENE REGION  
(NAMIBIA)**

Project Number: **2021/KUN/KAN/001**

Competent Authority: **MINISTRY OF URBAN AND RURAL DEVELOPMENT  
NAMIBIA PLANNING AND ADVISORY BOARD / TOWNSHIPS  
BOARD  
PRIVATE BAG 13289  
WINDHOEK  
NAMIBIA**

Approving Authority **DIRECTORATE OF ENVIRONMENTAL AFFAIRS  
MINISTRY OF ENVIRONMENT AND TOURISM  
PRIVATE BAG 13306  
WINDHOEK**

Proponent/Client: **KAMANJAB VILLAGE COUNCIL  
PO BOX 81  
KAMANJAB**

Consultancy: **URBAN GREEN CC  
PO BOX 11929, KLEIN WINDHOEK  
TELE.: +264-61-300 820  
CELL: +264-81 129 5759  
E-MAIL: [urbangreen@iway.na](mailto:urbangreen@iway.na)  
WEBSITE: [www.urbangreenafrica.net](http://www.urbangreenafrica.net)**

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## LIST OF ACRONYMS

A	Ampère
BID	Background Information Document
°C	Celsius
CENORED	Central North Regional Electricity Distributor
dB	Decibel
DEA	Directorate of Environmental Affairs
DR	District Road

DSR	Draft Scoping Report
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
ESP	Environmental Structure Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESP	Environmental Structure Plan
FSR	Final Scoping Report
Ha	Hectare
I&AP	Interested and Affected Party
Km	Kilometre
Km/h	Kilometres per hour
kVA	Kilowatts Ampère
L	Litre
MAW	Ministry of Agriculture and Water
MAWF	Ministry of Agriculture, Water and Forestry
MAWLR	Ministry of Agriculture, Water and Land Reform
MET	Ministry of Environment, Forestry and Tourism
MET	Ministry of Environment and Tourism
m <sup>3</sup>	Cubic meters
mg	Milligram
mm	Millimetre
No	Number
Ptn	Portion
PPP	Public Participation Process
Re/	Remainder
RoW	Right of Way
SA	South Africa
SABS	South African Bureau of Standards



SANS	South African National Standards
ToR	Terms of Reference
TDS	Total Dissolved Solids
VIP	Ventilated Improved Pits
WWTP	Waste Water Treatment Plant

## GLOSSARY OF TERMS

<b>Activity</b>	The physical work that a Proponent proposes to undertake.
<b>Alternatives</b>	A possible course of action, in place of another, that would meet the same purpose and need, but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The “no-go” alternative constitutes the ‘without project’ option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.
<b>Assessment</b>	The process of identifying, predicting, and evaluating the significant effects of activities on the environment; and the risks and consequences of activities and their alternatives and options for mitigation with a view to minimise the effects of activities on the environment.
<b>Audit</b>	Regular inspection and verification of construction activities for implementation of the EMP.
<b>Bulk Supply</b>	The wholesale supply of i.e. water on a business-orientated basis, in large quantities, whether in treated or untreated form, for any utilisation purpose to a customer for own use or for subsequent supply by the customer to consumers.
<b>Bund</b>	An enclosure designed to hold at least 120% of the contents of a liquid storage vessel, tank, or drums to contain any spillage.
<b>Business building</b>	A building designed and/or used as offices, warehouses, medical or dental consulting rooms, laboratories or other business purposes but does not include other buildings specifically defined or mentioned elsewhere in this Scheme with the exception of offices.
<b>Competent Authority</b>	A body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
<b>Contaminated Water</b>	Water contaminated by the Proponent’s activities, e.g. polluted runoff from plant/personnel wash areas.
<b>Coverage</b>	The total percentage of the area of an erf that may be covered by buildings.

<b>Critically Endangered (IUCN)</b>	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V of the IUCN Red List Categories and Criteria), and it is therefore considered to be facing an extremely high risk of extinction in the wild.
<b>Cumulative Impacts</b>	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
<b>Emergency Situation</b>	<p>An incident, which potentially can significantly impact on the environment, and which, could cause irreparable damage to sensitive environmental features. Typical situations entail amongst others the:</p> <ul style="list-style-type: none"> <li>• Spill of petroleum products and lubricants into the aquatic system.</li> <li>• Potential damage, erosion and slumping of unstable river embankments or drainage channels.</li> <li>• Potential event of impeding the continuous flow of water to downstream water user's dependant on the flow; and</li> </ul> <p>Dangerous situation where livestock and children can be injured by any activity emanating from the construction or rehabilitation of the project implementation.</p>
<b>Endangered (IUCN)</b>	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V of the IUCN Red List Categories and Criteria), and it is therefore considered to be facing a very high risk of extinction in the wild.
<b>Environment</b>	As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".
<b>Environmental Impact Assessment (EIA)</b>	The process of examining the environmental effects of a development as prescribed by the Environmental Impact Assessment Regulations (GN. No. 30 of 2012) for activities listed as List of Activities which may not be undertaken without an Environmental Clearance Certificate from the Environmental Commissioner (GN. No. 29 of 2012).
<b>Environmental Management Plan (EMP)</b>	A working document on environmental and socioeconomic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
<b>Environmental Site Manager (ESM)</b>	It is a suitably qualified environmental officer appointed by the Proponent who oversees the on-site daily environmental responsibilities.

<b>Evaluation</b>	The process of ascertaining the relative importance/significance of information, in light of people's values, preference and judgements in order to make a decision.
<b>Hazardous Substance</b>	A substance that, in the reasonable opinion of the Engineer and/or ECO, can have a harmful effect on the environment.
<b>Independent Environmental Officer (IEO)</b>	A suitably qualified professional independent from the Proponent who ensure that all environmental specifications and EMP obligations are met. The IEO will be responsible for the monitoring, reviewing, and verifying of compliance with the EMP by the Proponent.
<b>Infiltration area</b>	The area lying within a 1 in 50 year flood area or within a strip of land measured 5 metres outwards on both sides from the outer edges of the seasonally active bed (gravel bed) or the visually identifiable banks of a watercourse which is further than 500 metre from its bounding watershed, or as may be assessed by a hydrogeological study as being an area within which surface water percolates into the groundwater in above average quantities, whichever is the larger.
<b>Interested and Affected Party (I&amp;AP)</b>	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
<b>Invasive Species</b>	It refers to a non-indigenous plant, animal or micro-organism; or an indigenous plant, animal or micro-organism, translocated or intended to be translocated to a place outside its natural range of nature, that does not normally interbreed with individuals of another kind, including any subspecies cultivar, variety, geographic race, strain, hybrid or geographically separate population.
<b>Listed Activity</b>	An activity listed in terms of section 27(2) of the Environmental Management Act and the List of Activities which may not be undertaken without an Environmental Clearance Certificate from the Environmental Commissioner (GN. No. 29 of 2012).
<b>Mitigate</b>	The implementation of practical measures to reduce adverse impacts.
<b>Monitoring</b>	Regular inspection and verification of construction activities for degree of compliance to the EMP.
<b>No-Go Areas</b>	Areas identified as being environmentally sensitive in some manner and demarcated on plan, and on the Site with pegs or fencing and which are out of bounds to unauthorised persons. Authorisation must be obtained prior to entry.
<b>Petroleum</b>	Includes petrol and diesel
<b>Proponent</b>	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in

	any other notice published by the Minister or Ministry of Environment, Forestry & Tourism.
<b>Public</b>	Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.
<b>Public consultation</b>	The process of engagement between stakeholders (the proponent, authorities and I&AP) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process.
<b>Red Data List (IUCN)</b>	The IUCN Red Data List of Threatened Species is widely recognised as a comprehensive, objective global approach for evaluating the conservation status of plant and animal species.
<b>Residential unit</b>	A room or suite of rooms, other than a dwelling unit, which is designed as a dwelling for a single household or for one or more single persons.
<b>Scoping Process</b>	Process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.
<b>Service station</b>	A building used for the purpose of profit or gain for one of the following purposes, namely to maintain or repair motorbikes and motor vehicles or to supply fuel and for related purposes which also includes the parking or storage of motor vehicles, the sale of parts, accessories, fuel and lubrications for motor vehicles, but does not include panel-beating, spray painting and the dismantling of motor vehicles and motorbikes (except for minor repair works).
<b>Sewage works</b>	Any reservoir, tank, strainer, filter bed, engine, pump, machinery, land, building or such other works (except sewers) as may be necessary to treat and dispose of sewage.
<b>Significant Effect/Impact</b>	Means an impact that by its magnitude, duration, or probability of occurrence may have a notable effect on one or more aspects of the environment.
<b>Site</b>	In relation to a building includes the area of any appurtenances, outbuildings, yard, court or garden occupied or intended to be occupied in conjunction therewith.
<b>Solid Waste</b>	All solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food, and domestic waste.

<b>Stormwater drain</b>	A conduit acquired or constructed by a local authority council for purposes of conveying stormwater, and includes anything connected therewith.
<b>Street</b>	Any road, thoroughfare, pavement, sidewalk, lane or other right of way set apart for the use and benefit of residents in a local authority area.
<b>Sustainable Development</b>	Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations.
<b>Topsoil</b>	The top 150 mm of soil (topsoil) and root material of cleared vegetation.
<b>Townlands</b>	The land within a local authority area situated outside the boundaries of any approved township, which has been set aside for the mutual benefit of the residents in its area, and for purposes of pasturage, water supply, aerodromes, explosive magazines, sanitary and refuse deposits or other public purposes or the extension of such township or the establishment of other approved townships
<b>Waterworks</b>	Any weir, well, borehole, watercourse, dam, pumping station, reservoir, tank, sluice, pipeline, machinery, building, land or such other works as may be necessary to take, impound, discharge, store, treat or filter water or to maintain or carry on any such waterworks.
<b>Vulnerable</b>	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable and it is therefore considered to be facing a high risk of extinction in the wild.
<b>Warehouse</b>	A building used or intended to be used for the storage of goods other than goods which will be used on or sold by retail from the premises on which they are stored.
<b>Water Resource</b>	A natural source or occurrence of water, which is not artificially confined.

## EXECUTIVE SUMMARY

Kamanjab Village Council (the Proponent and also Developer), is of the intention to formalise and proclaim two existing un-proclaimed settlements that have an informal township layout., namely Rotsvesting Extensions 4 & 5 within the Kamanjab Village. They will be an extension to the existing Rotsvesting Proper, and its Extension 1, 2 and 3 townships and for this the existing bulk infrastructure will be expanded to accommodate the additional two extensions. No major new infrastructure developments are thus envisaged for this purpose, but only extensions of existing infrastructure, such as roads, water, electricity, waste management, sewerage, stormwater, and telecommunication infrastructure.

Rotsvesting Extension 4 and 5 were created during 2010 as “reception areas” to accommodate the influx of people into Kamanjab within an orderly and planned manner. The motivation or the need and desirability for the development of Rotsvesting Extension 4 and 5 are based on the need to provide formal erven with proper municipal services, enabling land tenure and acceptable living standards, as per the goals of Vision 2030.

In accordance with the Environmental Management Act, (Act No. 7 of 2007) and within the framework of the Environmental Impact Assessment Regulations (2012), Urban Green cc (EAP) has been appointed by the Proponent to undertake an Environmental Scoping Assessment and apply for an Environmental Clearance Certificate for the township development.

Kamanjab is located to the central-eastern part of the Kunene Region, in the north-western part of Namibia. Refer to Fig. 5.1 in Section 5.1 for the locality map of Kamanjab within Namibia.

The natural environment is typical of the *Kamanjab Plateau* dominated by *Mopani Savannah* with grasslands and scattered trees and/or mixed woodlands. The landscape is defined by various granite outcrops and larger mountains with plains and rivers/tributaries in between. It has an arid climate typified as very hot and dry in summer and moderate dry winters.

Kamanjab is situated on the edge between an area regarded as having little or no groundwater and a moderately productive aquifer flowing northwards. Consequently, groundwater in the Kamanjab area varies from weak to very strong yielding boreholes within a distance of a few kilometres.

Kamanjab is situated on the border between the *Western Highlands* and *Karstveld*. The vegetation form part of the *Tree-and-shrub Savanna* biomes, characterised by large open expanses of grasslands and scattered trees and/or mixed woodlands. The western escarpment – including the Kamanjab area – is an important area in Namibia with numerous endemic and near-endemic species as well as a host of other plant species classified with some kind of formal protection. The terrestrial diversity is regarded as high due to the mountainous nature of the landscape with intersections of rocky terrain and major ephemeral river courses. This unique landscape’s overall endemism is also high.

The Kunene Region is still predominantly rural based, with only a few proclaimed urban areas (i.e. Khorixas, Outjo, Kamanjab, Opowu). Compared to the rest of Namibia, the Region is

relatively underdeveloped. The Region's economy is predominantly based on tourism, commercial agriculture (south-eastern parts) and a dominant small-scale subsistence agricultural sector (in the communal areas west and north-west.).

Kamanjab is a small urban settlement situated central within the Kunene Region providing in the basic needs of the residents and surrounding areas. The Village has a population of  $\pm 6,000$  people, dependent on the agricultural and tourism sectors for their primary income. The socio-economic conditions of the majority of residents living in the larger Kamanjab can be described as challenging and of low income status.

Formal housing with the larger Kamanjab Village is well established and within the proclaimed townships, while both informal and formal structures are evident within the un-proclaimed townships. Health services are provided by a Government clinic situated in Kamanjab Proper. Educational facilities are provided in the form of two primary schools and a few smaller private businesses (small shops & shebeens) and informal traders are situated within the Rotsvesting Townships.

The Village of Kamanjab, an Otjiherero name, does not have any registered historical significance itself and no record of any cultural or historical importance or on-site resemblance of any nature was identified within the larger Kamanjab Village area. The Peet Alberts Koppies, a National Monument proclaimed on 1 May 1967, is situated  $\pm 10$  km east of Kamanjab Village.

Engagement with the public and authorities as part of the first round of public consultation commenced on the 18<sup>th</sup> of August 2021 and concluded on the 24<sup>th</sup> of September 2021. All comments and feedback received from I&APs and Authorities are summarised in Table 6.1 in this Report, while a copy of the original correspondence is attached as Appendix D10. A total of 2 I&AP were registered (Appendix D9).

A second round of public consultation was undertaken during 29 September to 7 October 2022 when notification e-mails (Appendix D11) with Draft Scoping Report (DSR) were sent to all I&APs and authorities. No further comments were received.

**Construction Impacts** identified that may possibly occur were:

- *Erosion & Sedimentation* due to vegetation clearance, trenches and excavated areas;
- *Ground and Surface Water Pollution* caused by inappropriate waste, hazardous material and liquid disposal;
- *Habitat Destruction and Loss of Biodiversity* due to vegetation clearance, removal of trees and/or poaching;
- *Visual Aesthetics and Sense of Place* can be negatively affected by vegetation clearance, poorly planned construction sites and/or insensitive infrastructure design and scale;
- *Heritage and Archaeological Resources* can be damaged through removal and/or disturbance;
- *Natural Resources* can be negatively consumed by unacceptable high levels of consumption or wastage of water and electricity;

- *Socio-Economic Impacts* can be caused by dust, noise and vibration. Health, safety and security of residence might also be negatively affected.

The impact assessment of these as well as mitigation measures are provided in Section 7.4.1.

**Operational impacts** that may possibly occur are:

- *Erosion & Sedimentation* caused by cleared areas;
- *Ground and Surface Water Pollution* due to inappropriate waste, hazardous material and liquids disposal;
- *Habitat Destruction and Loss of Biodiversity* caused by cleared vegetation, erosion and/or poaching;
- *Visual Aesthetics and Sense of Place* can be altered by design and scale of buildings, landscaping and land use change;
- *Socio-Economic* environment may be impacted by increased municipal rates and taxes, traffic noise and safety;
- *Natural Resources (water & electricity)* can reach unacceptable high levels of consumption if wasted or unsustainable practises are implemented.

The impact assessment of these as well as mitigation measures are provided in Section 7.4.2.

Township developments are very seldom **decommissioned** and/or closed as a functioning entity, although some aspects require upgrading (i.e. decommissioning and replacement). In such an event, the activities are 100% similar to that of the construction phase and is accordingly treated and managed in accordance with Environmental Construction Management Plan (Appendix E)

**Cumulative impacts** that may contribute to existing impacts, are:

- *Ground and Surface Water Pollution* (e.g. wastewater; domestic waste).
- *Habitat Destruction and Loss of Biodiversity*
- *Demand for natural resources* (e.g. water & electricity).
- *Visual Aesthetics and Sense of Place / Land Use Change*
- *Socio-economic Implication*
  - Income Generation & Skills Transfer (Employment)
  - Municipal Rates & Taxes
  - Economic Benefit to the Construction Industry
  - Traffic & Safety
- *Load on infrastructure* (e.g. water network; road infrastructure; waste dumpsite).

Considering the medium- to low density nature and sustainable practises proposed for implementation at the Development, the pre-operational cumulative impact is considered to be



**low.** It is however important that continues assessment be done as data become available over time, and that the necessary adjustments be made as and when required.

Based on the baseline information and after following the above evaluation, as presented in this Environmental Scoping Assessment Report, it is concluded that there is currently no evidence suggesting that any of the potential impacts identified are of such significance that it cannot be mitigated and that the Rotsvesting Extension 4 and 5 Formalisation should not be allowed to continue.

It is therefore recommended that an Environmental Clearance Certificate be issued for the listed activities forming part of the Rotsvesting Extension 4 and 5 Development, subject to the following recommendations:

- All required permits, licenses and approvals (see section 3.4) for the Development be obtained before construction commences.
- All mitigations listed in Tables 7.2.1 to 7.2.10, and Tables 7.3.1 to 7.3.7, and the Construction Environmental Management Plan (Appendix E) be implemented prior and during construction.
- Pollutants of different sorts should be managed and treated in such a manner not to cause any pollution of the immediate and surrounding receiving environments. The necessary mitigations to achieve a zero pollution factor have been proposed within this Scoping Report and the Construction Environmental Management Plan.
- An Environmental Control Officer should be appointed during the construction phase of the Development to make sure all the requirements within the Scoping Report and Construction Environmental Management Plan (Appendix E) are adhered to.
- In the event that road construction material is sourced from nearby quarries it is required that the necessary approval (i.e. environmental clearance certificate) either exists or be obtained by the appointed Contractor.
- It is recommended that alternative and renewable sources of energy be explored and introduced into the Development to reduce dependency on natural resources. Recycling and reuse of treated wastewater or rainwater should be implemented.
- Continued public participation should form part of the construction phase.
- Before construction commences it is recommended to conduct an ecological survey to ensure that all protected species be marked as no-go areas.
- Continued on-site monitoring and evaluation be conducted during the construction and operational phases to be authorised by the DEA and Kamanjab Village Council.
- That an Environmental Audit Report be compiled once the construction phase is completed and submitted with both the Directorate of Environmental Affairs (MET).



# 1 INTRODUCTION TO PROJECT AND THIS REPORT

This chapter of the report provides a background and motivation to the proposed Project; the study's terms of reference; study approach and methodology, the purpose of this report; the assumptions and limitations and an outline of the remainder of the report.

## 1.1 PROPOSED PROJECT

Kamanjab Village Council (hereafter referred to as the Proponent), is of the intention to formalise and proclaim two existing informal townships, namely Rotsvesting Extensions 4 & 5 within the Kamanjab Village. Kamanjab is located to the central-eastern part of the Kunene Region, in the north-western part of Namibia. Refer to Fig. 5.1 in Section 5.1 for the locality map of Kamanjab within Namibia.

The proposed Townships Establishment involve certain activities that are listed as activities that require an Environmental Clearance Certificate (ECC) in order to proceed [Section 27(3) of the Environmental Management Act, No. 7 of 2007].

In accordance with the Environmental Management Act, (Act No. 7 of 2007) and within the framework of the Environmental Impact Assessment Regulations (2012), Urban Green cc (EAP) has been appointed by the Proponent to undertake an Environmental Scoping Assessment and apply for an Environmental Clearance Certificate for the township development.

## 1.2 NEED AND DESIREBILITY OF THE PROJECT

As with most Namibian self-governed settlements, Kamanjab is affected by urbanisation. For new inhabitants the Kamanjab Village has "reception areas" where new low-income inhabitants may temporarily settle for a minimal fee. Rotsvesting Extensions 4 & 5 were created during 2010 as Reception Areas to accommodate the influx of people into Kamanjab Village within an orderly and planned manner.

The two reception areas are now fully occupied and the Kamanjab Village Council has sourced funding to proceed with the formalisation and proclamation thereof to become formal townships. Once the informal areas are formalised and proclaimed as proper townships the occupier of a property has the option to buy the property and claim ownership according to the Local Authority Act No. 23 of 1992, as amended.

The motivation or the need and desirability for the development of Rotsvesting Extension 4 and 5 are based on the need to provide formal erven with proper municipal services, enabling land tenure and acceptable living standards, as per the goals of Vision 2030.

### **1.3 STUDY TERMS OF REFERENCE**

No formal Terms of Reference (ToR) were provided, but rather were inferred from the requirements of the applicable legislation, namely the Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), to enable an application for an Environmental Clearance Certificate with the Environmental Commissioner, as required by Section 27(3) of the Environmental Management Act (No. 7 of 2007).

The purpose of this Study (i.e. content of this Report) is to apply for an ECC only. All other permits and/or licenses (see section 3.4) required for the operation of the formalised Rotsvesting Extension 4 and 5 Townships still need to be applied for by the Proponent.

### **1.4 STUDY APPROACH AND METHODS**

This EA process was carried out in accordance with provisions for EA, as prescribed by the Environmental Impact Assessment Regulations (GN. No. 30 of 2012), provided for by Section 56 of the Environmental Management Act (No. 7 of 2007).

The study's approach and methods were guided by the Terms of Reference (Section 1.3) and the relevant legislation (Chapter 3).

The EA process is a planning, design and decision-making tool used to inform the relevant authorities and Proponent on what the consequences of their decisions will be in biophysical and social terms. As such, it identifies potential impacts (negative and positive) that the Project may have on the natural and social environments; as well as identifying potential opportunities and constraints the natural and social environment may pose to the development.

The steps followed as part of this EA process, are (i) registration of application for an ECC, and (ii) execution of a scoping assessment (content of this report). A flowchart indicating the process being followed is presented by Figure 1.4 below.

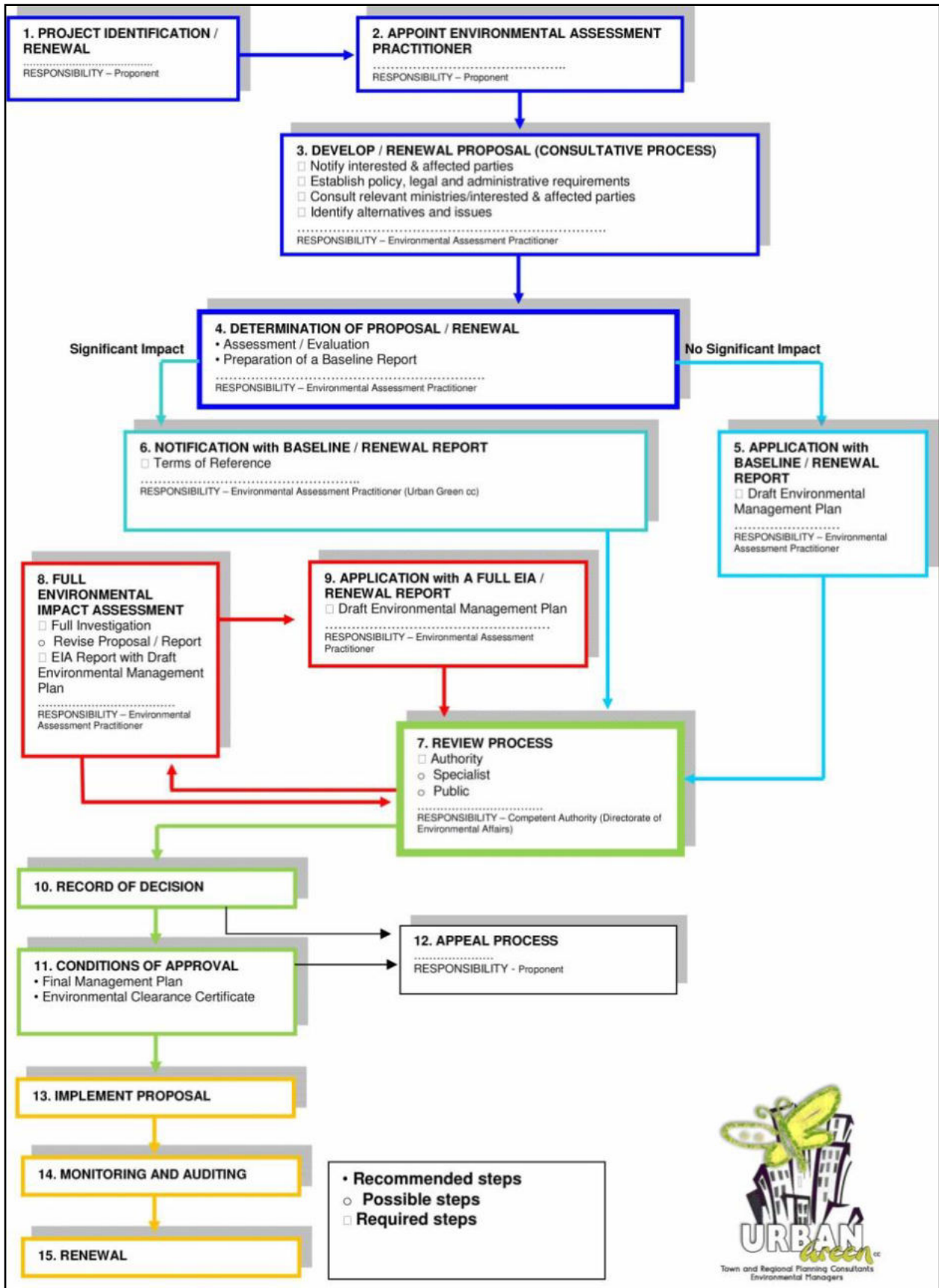


Figure 1.4: Diagrammatic representation of Namibia's Environmental Assessment process

### 1.4.1 REGISTRATION OF APPLICATION FOR ECC

The first step followed, as part of this EA process was to identify the listed activities potentially associated with the Project, as stipulated in the '*List of Activities that may not be undertaken without an Environmental Clearance Certificate*' (GN. No. 29 of 2012) and register the mentioned with the Office of the Environmental Commissioner.

The listed activities for which an ECD was applied for are:

#### *ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES*

*The construction of facilities for -*

- 1(b) the transmission and supply of electricity;*

#### *WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES*

- 2.3 The import, processing, use and recycling, temporary storage, transit or export of waste.*

#### *FORESTRY ACTIVITIES*

- 4 Removal of species protected under the Forest Act, 2001 (Act No. 12 of 2001) or any other law*

#### *LAND USE AND DEVELOPMENT ACTIVITIES*

- 5.2 The establishment of land resettlement schemes.*

#### *INFRASTRUCTURE*

- 10.1 The construction of –*

- (a) bulk water supply pipelines*

- (b) public roads*

In accordance with Section 32 of the EMA, Applications for an ECC should be submitted with the relevant Competent Authority. The Competent Authority is defined as that authority having the jurisdiction to approve or permit a particular listed activity in accordance with the relevant national legislation.

For this Project the Ministry of Urban and Rural Development (as provided for by the Urban and Regional Planning Act, No. 5 of 2018) was identified and informed in writing on 19 August 2021 of the Proponent's intention to apply for an ECC with the Environmental Commissioner. A copy of the application was also submitted with the Office of the Environmental Commissioner with the Ministry of Environment, Forestry and Tourism for reference (Appendix A).

### **1.4.2 SCOPING STAGE AIMS**

The next step followed, as part of this assessment process, was the scoping assessment (content of this report). The identification of potential impacts and their significance, as well as public consultation (as prescribed by Regulation 21 to 24 of the EIA Regulations (GN. No. 30 of 2012)) are important elements of the scoping stage of a study. During the scoping stage issues/impacts that are likely to be significant are identified and those that are less significant are evaluated and if warranted, eliminated.

### **1.4.3 SCOPING STAGE METHOD**

The method followed during the scoping stage was as per the requirements set by the Environmental Impact Assessment Regulations (GN. No. 30 of 2012), which included –

- Giving notice to all potential interested and affected parties (I&APs) of the application (ECC application);
- Public consultation as per Regulation 21 which included the -
  - Opening and maintaining a register of all I&APs;
  - Receiving and recording of all comments and representations received from I&APs following the public consultation processes;
- Preparing a scoping report by subjecting the proposed application to scoping by -
  - Assessing the potential effects of the proposed listed activities on the environment (specialist studies also formed part of this stage);
  - Assessing whether and to what extent the potential effects identified can be mitigated and whether there are any significant issues and effects that require further investigation;
  - Identifying feasible alternatives related to the Project;
  - Setting the Terms of Reference for further investigations (if required);
  - Informing I&APs of the way forward in the EA process;
  - Ensuring informed, transparent and accountable decision-making by the relevant authorities; and
  - Inviting all registered I&APs to comment on the scoping report.
- Informing all registered I&APs of the decision of the office of the Environmental Commissioner.

#### 1.4.4 ISSUES AND CONCERNS RAISED, IDENTIFIED AND ASSESSED

General impacts associated with township developments include the following:

- Loss of biodiversity and habitat destruction;
- Soil, surface water and groundwater pollution;
- Erosion and sedimentation;
- Use of natural resources (water and electricity);
- Visual impacts;
- Waste (domestic and sewerage);
- Nuisance impacts such as dust, noise or vibrations.

This Scoping Study, however, focused on issues and concerns associated with the formalisation and proclamation of the two already developed informal townships.

During the 1<sup>st</sup> round of Public Participation and Screening Stage the following issues for further investigation were raised:

- Sustainable yield and water quality from NamWater; and
- The formalisation process and township layout should take the existing informal infrastructure into account and no relocation of structures should be done.

These issues are discussed in Chapter 7 of this Report. Mitigation measures and recommendations are provided in Section 7.4.

### 1.5 STUDY ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations applied to this Study:

- It is assumed that the information provided by the Proponent and applicable authorities, is accurate and that those aforementioned have disclosed all necessary information available;
- No alternative site or township layout for assessment was provided;
- It is assumed that all permit or licence requirements, other than the ECC, associated with the Project will be addressed as separate investigations and are not included in this EA process;
- It is assumed that there will be no significant changes to the project (see Chapter 4) or the affected environment (see Chapter 5) between the compilation of this report and implementation of the project that could substantially influence findings, recommendations with respect to mitigation and management, etc.;



- The EA process involved the assessment of impacts on the current conservation value of affected land and not on either the historic or potential future conservation value; and
- The assessment is based on the prevailing environmental (social, physical and biophysical) and legislative context at the time of writing this report;
- Should an Interested and Affected Party or Authority not provide his/her written comments to the EAP or contact the office of the EAP, it is assumed that the I&AP and/or Authority do not have any comment.

## **1.6 PURPOSE OF THIS FINAL SCOPING REPORT**

This Final Scoping Report (FSR) has been compiled as part of the Environmental Assessment that has been undertaken for the development and formalisation of Rotsvesting Extensions 4 and 5 (i.e. Portion 6 of the farm Kamanjab no. 190). This FSR summarises the process followed to date, provides a description of the Project and addresses the issues raised by Interested and Affected Parties (I&APs) during both consultation opportunities. It further provides an assessment of the possible social and environmental impacts that the township formalisation and establishment would have along with mitigation measures and recommendations.

The Draft version of this Report was made available for public review and comment from 30 September to 7 October 2022, as required by section 23 of the Environmental Impact Assessment Regulations (GN. No. 30 of 2012). Comments received were included into this Final Scoping Report (FSR) to be submitted to the Ministry of Urban and Rural Development (i.e. Competent Authorities) and the Directorate of Environmental Affairs (i.e. Approving Authority) with the Ministry of Environment, Forestry and Tourism for decision-making.

After the DEA has reached a decision, all registered I&APs on the project database will be notified of the decision and the requirements of the statutory Appeal Period (in terms of Part X, Section 50 of the EMA).

## **1.7 STRUCTURE OF THE REPORT**

This Environmental Scoping Report presents the information on the Development (i.e. Formalisation and Proclamation of Rotsvesting Extension 4 and 5), the Property (i.e. Portion 6 of the farm Kamanjab no. 190) and its surroundings; legislation applicable to the study conducted and the development to be undertaken; the EA approach and methodology followed; public consultation conducted; the sensitivity of the receiving environment; nature and extent of potential impacts (environmental and social) and required mitigations; further studies required (if any) and a conclusion and recommendation based on the findings.

The report consists of nine chapters as outlined below.

**Table 1.7 – Structure of the Report**

<b>SECTION</b>	<b>CONTENTS</b>
<b>Executive Summary</b>	<b>Executive Summary</b> Provides and overview of the main findings of the Study.
<b>Chapter 1</b>	<b>Introduction</b> Provides a brief overview of the proposed project, background and motivation to the Development; study terms of reference; the study approach and methodology, the study assumptions and limitations; purpose and structure of the Report.
<b>Chapter 2</b>	<b>Project Team and Expertise</b> Provides an overview of the role-players participating in the project as well as their experiences.
<b>Chapter 3</b>	<b>Legislation Applicable to the EA and Project</b> Provides an overview of the key legislation of relevance to the environmental assessment process and activities associated with the proposed development.
<b>Chapter 4</b>	<b>Description of the Proposed Development</b> Provides a description of the township layout and different land uses; as well as the required resources and municipal services, and the socio-economic contribution.
<b>Chapter 5</b>	<b>The Affected Environment</b> Describes the details pertaining to the existing physical and biophysical environment of the surrounding area, urban and site build-up environment, the socio-economic characteristics and cultural-historic environment as well as visual aesthetics and sense of place of the study area.
<b>Chapter 6</b>	<b>Details of the Public Participation Process</b> Explains in detail the entire public consultation process followed as part of this study. Feedback received from registered Interested and Affected Parties are listed as well.
<b>Chapter 7</b>	<b>Assessment of Environmental Issues, Potential Impacts and Mitigations</b> Describes and assesses the potential impacts of the proposed development. Mitigation measures relevant to the planning; design, construction and operational phases of the development as appropriate and recommended.
<b>Chapter 8</b>	<b>Conclusions and Recommendations</b> Provides conclusions to the impact assessment and states the overall suitability of the development. Recommendations for implementation during the further planning, design, construction and operation of the development are also provided, as appropriate.
<b>Chapter 9</b>	<b>References</b> Provides information on the information referenced in the document.

## 2 PROJECT TEAM AND EXPERTISE

### 2.1 ROLE PLAYERS

The role players on this Project are set out in Table 2.1.

**Table 2.1** *The Role Players*

ORGANISATION	PROJECT ROLE
Ministry of Urban and Rural Development	Competent Authority at Central Government Level
Kamanjab Village Council	Competent Authority at Local Government Level
Ministry of Environment, Forestry and Tourism	Competent Authority
Department of Environmental Affairs	Decision-making authority for environmental authorisation
Kamanjab Village Council	Proponent
Urban Green cc	Independent Environmental Consultant

### 2.2 EXPERTISE OF THE EAP

The qualifications and expertise of the environmental consultant, as required by section 8(a) of the EIA Regulations, are set out in Table 2.2 below. A detailed CV of the Environmental Assessment Practitioner (EAP) is attached as Appendix B.

**Table 2.2** – *Qualifications and expertise of the environmental consultants*

NAME	Mr Brand van Zyl
Responsibility on the Project	EAP; project management; public & stakeholder consultation; impact assessment and mitigation formulation; reporting and application for Environmental Clearance
Qualifications	M. Degree in Environmental Management; M. Degree Town and Regional Planning; Bachelor of Arts Urban Geography
Professional Registration	Namibian Council for Town and Regional Planners Member of the Green Building Council of South Africa
Experience in years	17
Experience	Brand van Zyl has been involved in various Environmental Impact Assessment studies throughout Namibia and of different kind.

NAME	Mrs Christina Tromp
Responsibility on the Project	EAP Ecologist, Impact assessment and mitigation formulation; reporting and application for Environmental Clearance
Qualifications	M. Phil Degree in Environmental Management and Bachelor of Science Degree in Agriculture, majoring in Nature Conservation
Professional Registration	Environmental Assessment Professional Association of Namibia (EAPAN)
Experience in years	13
Experience	Christina Tromp is an educated environmentalist with work experience in the Namibian environment in Rural Development, Agricultural and Environmental sectors. She is a registered Environmental Assessment Practitioner. Her work experience was gathered in most regions of Namibia.

### 3 LEGAL AND REGULATORY REVIEW

For the purpose of environmental protection and sustainable renewable resource management to the benefit of all, legislation from different spheres under control of different Government Ministries have been adopted and enacted by the Namibian Parliament. In support to the goal of sustainable renewable resource management, various international treaties and conventions have also been agreed to by Namibia.

There are a number of sectoral laws that fall under the general rubric of environmental laws. Sectoral laws are generally specific and apply to sectors such as urban developments, water, forestry, and so forth. Any development, such as this, is expected to have certain impacts and would therefore have to comply with some or other legislative requirement/s before commencement.

This chapter provides an overview to the legislation that is applicable to both the assessment process and the various activities making up the development. It is accordingly divided into: (i) the legal framework for environmental management in Namibia; (ii) national sectoral legislative requirements applicable to the activities of the development; (iii) international treaties and conventions and (iv) other relevant legislation and approvals/permits required for the commencement of the Development.

#### 3.1 NAMIBIA LEGAL FRAMEWORK FOR EIA

Several Namibian legislation and policies have environmental consideration with respect to the proposed development. The instruments accounting for the legal framework for conducting an environmental assessment is listed in Table 3.1 below:

**Table 3.1** Legal Framework for Environmental Management in Namibia

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
<b>ENVIRONMENTAL ASSESSMENT LEGAL FRAMEWORK</b>		
The Namibian Constitution (1990)	Article 95 (1) states that " <i>the State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of natural resources on a sustainable basis</i> "  Article 100 stipulates that all natural resources are vested in the state, unless otherwise legally owned. The use of such resources is only allowed within reasonable limits and beyond such limits, permission	The development should support the provisions of the Namibian Constitution

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	should be obtained from a competent authority responsible for the use and governance of the concerned natural resources.	
Environmental Management Act (No 7 of 2007)	<p>Section 3(2) of the EMA provides a set of principles that give effect to the provisions of the Namibian Constitution for integrated environmental management.</p> <p>Section 27(3) stipulates that no party, whether private or governmental, can conduct a listed activity without an ECC obtained from the Environmental Commissioner.</p> <p>Section 40(1) stipulates that an ECC remains valid for a period not exceeding three years, subject to cancellation or suspension.</p>	<p>The development should adhere to the principles provided in the EMA.</p> <p>An ECC should be obtained for the Development.</p> <p>The Proponent should renew the ECC (if granted) every three years.</p>
EIA Regulations 2012 (GG No. 4878 GN No. 29 and 30)	<p>Provides for the process to be followed in undertaking an environmental assessment, stipulating particular requirements with regards to public consultation, the identification of impacts and establishing the significance thereof, as well as the content of an environmental scoping report.</p> <p>Of particular interest is the transfer of an ECC, which is regulated by section 20 of the EIA Regulations.</p>	<p>The EA process should be undertaken as prescribed in the EIA Regulations.</p> <p>Transfer of the ECC should be done as per the requirements, at the time when so required.</p>

### 3.2 NAMIBIAN SECTORAL LEGISLATIVE REQUIREMENTS

A number of Namibian legislation and policies have environmental considerations with respect to this township development. The sectoral legislation applicable to the development is listed in Table 3.2, below:

**Table 3.2** *Cross-sectoral legislation applicable to the Development*

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
<b>NATIONAL SECTORAL LEGISLATION</b>		
Water Act No. 54 of 1956, as amended and Water Resource	Makes provision for a number of functions pertaining to the management, control and	The Proponent should ensure that water use during the construction phase is as

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
Management Act No. 11 of 2013	<p>use of water resources, water supply and the protection of water resources.</p> <p>Of importance is that the Act -</p> <ul style="list-style-type: none"> <li>• Prohibits the pollution of underground and surface water bodies.</li> <li>• Provides that local authorities are responsible to provide, manage and operate systems for the conveyance, treatment and disposal of wastewater produced in its area.</li> <li>• Liability of clean-up costs after closure / abandonment of an activity.</li> </ul>	sustainable as possible and that no pollution of any above and/or below ground water resource takes place.
Forest Act No. 12 of 2001, as amended	<p>Provision for the protection of various plant species.</p> <p>Section 22(1): It is unlawful for any person to “cut, destroy or remove” any living tree, bush or shrub growing within 100 metres from a river, stream or watercourse on land that is not part of a surveyed erf or a local authority area without a licence.</p> <p>Prohibits the removal of and transport of various protected plant species.</p>	Protected vegetation should be incorporated as part of the Development.
Nature Conservation Ordinance No. 4 of 1975, as amended	<p>Protects wild animals and indigenous plants.</p> <p>Prohibits disturbance or destruction of the eggs of hutable game birds or protected birds without a permit.</p> <p>Requires a permit for picking (the definition of “picking” includes damage or destroy) protected plants without a permit.</p> <p>Prohibits the removal of and transport of various protected plant species.</p>	Vegetation in watercourses and 100m on either side is to be protected from damage. Intended removal of such vegetation would require a permit.
Soil Conservation Act No. 76 of 1969, as amended	Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources.	
Hazardous Substances Ordinance No. 14 of 1974, as amended	The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, and is administered	During the construction and operation phases, any hazardous waste needs to

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	by the Minister of Health and Social Services. Its primary purpose is to prevent hazardous substances from causing injury, ill health or the death of human beings.	be handled, stored and disposed of in a responsible manner and at appropriate waste sites.
Atmospheric Pollution Prevention Ordinance No 11 of 1976, as amended	Provides for the prevention of the pollution of the atmosphere. Part IV of this ordinance deals with dust control and provides for the proclamation of dust control areas.	Excessive dust emissions should be avoided as it could be categorised as causing a public nuisance under common law.
Public Health Act No. 36 of 1919, as amended  Health and Safety Regulations GN 156/1997 (GG 1617)	Section 119 states that “no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.”	The Proponent has a general obligation not to cause any nuisance, which may have an implication on human health.
Labour Act No. 11 of 2007, as amended	<p>The Labour Act (No. 6 of 1992), the New Labour Act (no. 11 of 2007) and Government Notice 156 of 1997: Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work, governs working conditions of employees.</p> <p>These regulations are prescribed for among others safety relating to hazardous substances, exposure limits and physical hazards. Special consideration must be given to:</p> <ul style="list-style-type: none"> <li>• Chapter 3: Welfare and Facilities at Work-Places</li> <li>• Chapter 4: Safety of Machinery</li> <li>• Chapter 5: Hazardous Substances</li> <li>• Chapter 6: Physical Hazards and general provision</li> </ul>	<p>The Proponent (including their appointed contractors) needs to comply with health and safety regulations pertaining to the health and safety of employees during construction.</p> <p>Operational activities should not result in any potential negative health implications to the residents and/or larger community.</p>
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations, as amended	<p>Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers.</p> <p>Part 5 of the 2001 Regulations lays out detailed provisions pertaining to vehicle loads – i.e. types of loads and the appropriate manner in which loads for</p>	<p>All personnel and vehicles active during the construction phase should be appropriately licensed.</p> <p>Construction materials transported/delivered to the construction site should adhere to the requirements</p>



STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	different vehicle classes should be carried.	of the 2001 Regulations – i.e. should not exceed limits stipulated and should be transported in a safe manner.
National Heritage Act (Act 27 of 2004), as amended	The Act requires the identification of cultural and archaeological sites within the study area, registration and protection thereof.	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.  Heritage resources need to be considered by a heritage specialist.
Townships and Division of Land Ordinance No. 11 of 1963, and the Amendment Act, No. 28 of 1992, as amended	Provides for the legal process to be followed in the instance of township establishments.	Statutory approval is required from the competent authority, namely the Ministry of Urban and Rural Development.
LOCAL SECTORAL LEGISLATION		
Local Authorities Act No. 23 of 1992, as amended	The Act provides for the determination and establishment of local authority council and matters incidental to that, as well as the management council and chief executive officer; specific requirements with regards to service delivery (i.e. water supply, sewerage and drainage, cemeteries, streets and public places, electricity supply, public transport services and housing schemes); municipal valuations, rates and taxes.  In general, the Act thus regulates the responsibilities of the particular local authority in delivering certain services to the residents of their particular urban area (i.e. municipality, town and/or village).	Permission for construction of water works, sewerage and drainage, streets, public places, culvert crossings, electricity supply and housing schemes is granted to local authorities. This Act does not refer to environmental protection. Environmental requirements of the Constitution are thus only transferred into the Traditional Authorities Act and not into the Local Authorities and Regional Councils Acts.  Environmental protection within urban areas is thus a result regulated by Council

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
		Policies or other plans (i.e. Town Planning Scheme), which are customary to the particular local authority. The Kamanjab Village Council does not have any policies or plans currently regulating and managing sustainable urban development, apart from regulating land uses.
Town Planning Ordinance No. 18 of 1954, as amended	<p>This Ordinance makes provision for the preparation and carrying out of town planning schemes and for matters incidental thereto. Every local authority to which the provisions of this Ordinance have been applied (which includes the Kamanjab Village Council) on the day of commencement is obligated to have a town planning scheme in place.</p> <p>As per this Ordinance –</p> <p><i>Every town planning scheme shall have for its <u>general purpose</u> a co-ordinated and harmonious development of the local authority area, or the area or areas situate therein, to which it relates (including, where necessary, the re-construction and re-development of any part which has already been sub-divided, whether there are or are not buildings thereon) in such a way as will most effectively tend to promote health, safety, order, amenity, convenience and general welfare, as well as efficiency and economy in the process of development and the improvement of communications.</i></p>	<p>In essence, a town planning scheme regulates land uses and activities within urban areas with the aim to achieve the general purpose, as outlined above. These land uses and activities are decided and implemented by way of a Town Planning Scheme, being a statutory document in accordance with the Town Planning Ordinance No. 18 of 1954, as amended.</p> <p>Any variations in the land uses are to follow a statutory procedure as prescribed by this Ordinance and the particular Town Planning Scheme (i.e. Kamanjab Town Planning Scheme).</p>
Solid Waste Management Policy	Set out the waste goals for waste management in urban areas.	Waste management solution to be in line with these goals.
General Health Regulations, 1969	Provisions for setting standards for conditions that promote health in urban areas.	Activities within the Development should be undertaken as per these Regulations.

While it has been set out to list all those laws and regulations, which regulate the healthy functioning of the environment, it is not necessarily complete and the Proponent has the responsibility to make themselves aware of all applicable legislation and permit requirements applicable to the Development. Regulations such as trade and business licences are excluded here.

### 3.3 INTERNATIONAL TREATIES AND CONVENTIONS

The international treaties and conventions applicable to the project and affected environment worth taking note of are listed below in Table 3.3 below.

**Table 3.3** - International treaties and conventions applicable to the development

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
Convention to Combat Desertification 1994	Focuses on land degradation in the dry lands where some of the most vulnerable ecosystems and people in the world exist.	The Development should adhere to land management, which contributes to the conservation and sustainable use of biodiversity and the mitigation of climate change.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.  Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings.	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised.
Stockholm Declaration on the Human Environment 1972	Recognises the need for: <i>“a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment”</i> . The following are among the proclamations made under the declaration: <ul style="list-style-type: none"> <li>• Natural resources must be protected</li> <li>• Wildlife must be protected</li> <li>• Pollution must not exceed the environment’s capacity to clean itself</li> </ul>	The Proponent should strive to adhere to the proclamations made under this declaration.

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	<ul style="list-style-type: none"> <li>Rational planning must prevent or resolve conflicts between environment and planning</li> </ul>	

### 3.4 AGREEMENTS, PERMITS, LICENCES AND/OR APPROVALS REQUIRED

The following permits and/or licenses (Table 3.4) should be obtained for the Rotsvesting Extension 4 and 5 Township Development.

**Table 3.4** – *Permits, licenses and/or approvals that may also be required*

Activity	Type of Permit / License	Legislation / Institute
Electricity provision	Approval required	Central North Regional Electricity Distributors (CENORED)
Water provision	Approval required	NAMWATER
Access from existing existing road network of the larger townships	Approval required	Kamanjab Village Council Local Authorities Act 23 of 1992
Removal of protected and indigenous species	Permit required if protected trees will be removed	Forest Act (No. 27 of 2004) & Nature Conservation Ordinance No. 4 of 1975, as amended. Ministry of Agriculture, Water and Forestry; Directorate of Forestry.
Storage of more than 600 litres of diesel on site (if applicable)	Consumer Installation Certificate required of the particular volume that will be stored on-site	Petroleum Product and Energy Act (Act No. 13 of 1990), as amended. Ministry of Mines and Energy
Solid waste removal system (if applicable)	Approval required if private waste management system applies	Kamanjab Village Council Local Authorities Act 23 of 1992

Change in land use	Approval required	Urban and Regional Planning Act, No. 5 of 2018 Ministry of Urban and Rural Development
Special permission for erven smaller than 300m <sup>2</sup>	Approval required	Urban and Regional Planning Act, No. 5 of 2018 Ministry of Urban and Rural Development

## 4 DESCRIPTION OF THE DEVELOPMENT

This chapter provides a description of the Development, required resources and expected waste, engineering services, construction activities and expected socio-economic contributions.

### 4.1 OVERVIEW

The Development comprises the formalisation and proclamation of two un-proclaimed settlements (Rotsvesting Extension 4 and 5) having an informal township layout. Rotsvesting Extensions 4 and 5 was created during 2010 as “reception areas” to accommodate the influx of people into Kamanjab within an orderly and planned manner.

Since 2010 people moved into these informally planned areas, constructing temporary and some permanent buildings with no formal infrastructure and paying a minimal fee to do so. The two reception areas are now fully occupied and the Kamanjab Village Council has sourced funding to proceed with the formalisation and proclamation of these two areas to become formal townships within Kamanjab Village. After proclamation each occupier will have the opportunity to buy the erf from the Kamanjab Village Council and the property will be transferred into the new owner’s name according to the Local Authority Act No. 23 of 1992, as amended.

### 4.2 FORMALISATION

‘Formalisation’ refers to the process whereby an ‘informal township’, which is an un-proclaimed township is subject to a legal process of establishing a formal township. Informal townships do not provide for land tenure and is usually also not provided with municipal services, mainly because of a lack of collateral and non-legal existence.

Formalisation of an informal area entails a statutory process, which includes a planning phase being done by the town planner (i.e. designing of a formal township layout and obtaining of the statutory approvals), a land surveying phase done by the land surveyor (i.e. registering of the townships general plan), the official proclamation of the township and lastly the registering of ownership.

The other component to this process entails the physical construction of services, i.e. roads, water network, electricity network and the wastewater network. It is also this component that pose the real impact, which need to be assessed and managed to ensure the least possible environmental and socio-economic impact/s.

### 4.3 DEVELOPMENT

Rotsvesting Extension 4 and 5 will be an extension to the existing Rotsvesting Proper, and its Extension 1, 2 and 3 townships and for this the existing bulk infrastructure will be expanded to accommodate the additional two extensions. Refer to Fig. 5.3 for the Map of Kamanjab Village Townlands. No major new infrastructure developments are thus envisaged for this purpose, but only extensions of existing infrastructure.

Infrastructure in the form of electricity has already been provided to 80 houses as part of Extension 5 and is being expanded as funding becomes available. Both township extensions have been fully serviced with water, while a few ventilated improved pit (VIP) toilets have been provided.

The informal townships of Extension 4 and 5 are currently fully occupied, comprising of both permanent brick structures and informal structures, i.e. corrugated iron structures, as indicated in Photo 4.1 below.



*Photo 4.1 – View over part of the informal area of Extension 4*

### 4.4 TOWNSHIP LAYOUT & LAND USES

The Development comprises of two additional extensions to Rotsvesting consisting of 158 erven (Extension 4) and 201 erven (Extension 5) of a variety of land uses, but mainly residential.

Figures 4.1 to 4.4 below gives an indication of the two township layouts, i.e. Rotsvesting Extensions 4 and 5, respectively.

Land use for Rotsvesting Extension 4 and 5 are mainly residential to meet the demand for housing and to supply formal erven with municipal services. Provision is made for a business property in each extension, an institutional property and cemetery in Extension 4 as well as ample public open spaces, as indicated below.

The Townships' layouts have been designed considering existing informal structures and property fences, as well as the existing bulk electricity supply network (see Appendix C). The township layout proposed has thus been done with the aim to minimize social disturbance within the existing informal lay-out.

In the event that some erven might be too small (i.e. smaller than 300m<sup>2</sup>), special permission will have to be obtained for these. Residents that might have to be relocated will be accommodated at other available erven forming part of the larger townships. These people will be assisted by the Kamanjab Village Council.

The street layout of the informal township has largely been adopted to minimise relocation and associated social disturbance and financial loss.

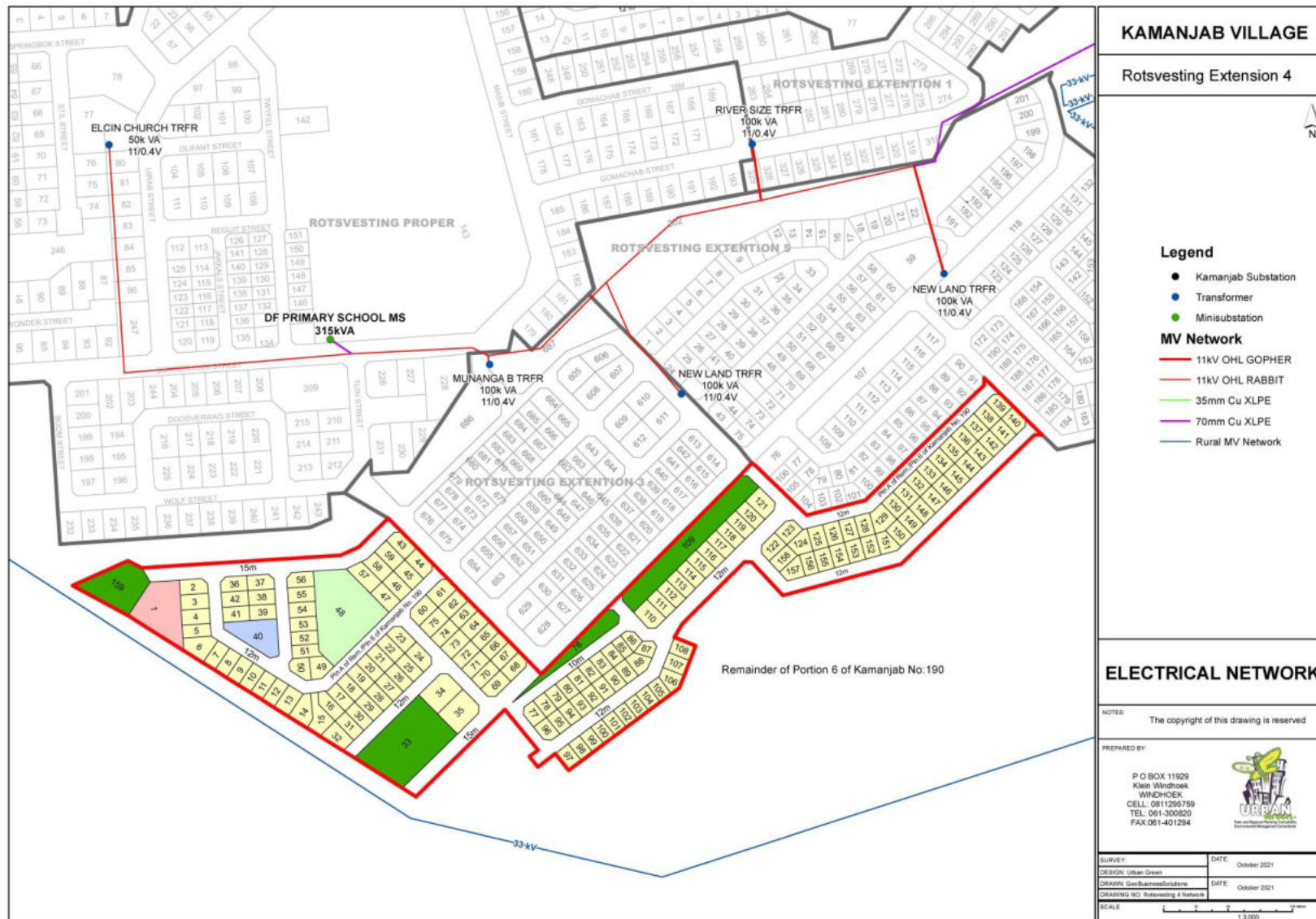


Figure 4.1 – Township Layout with land uses of Rotsvesting Extension 4



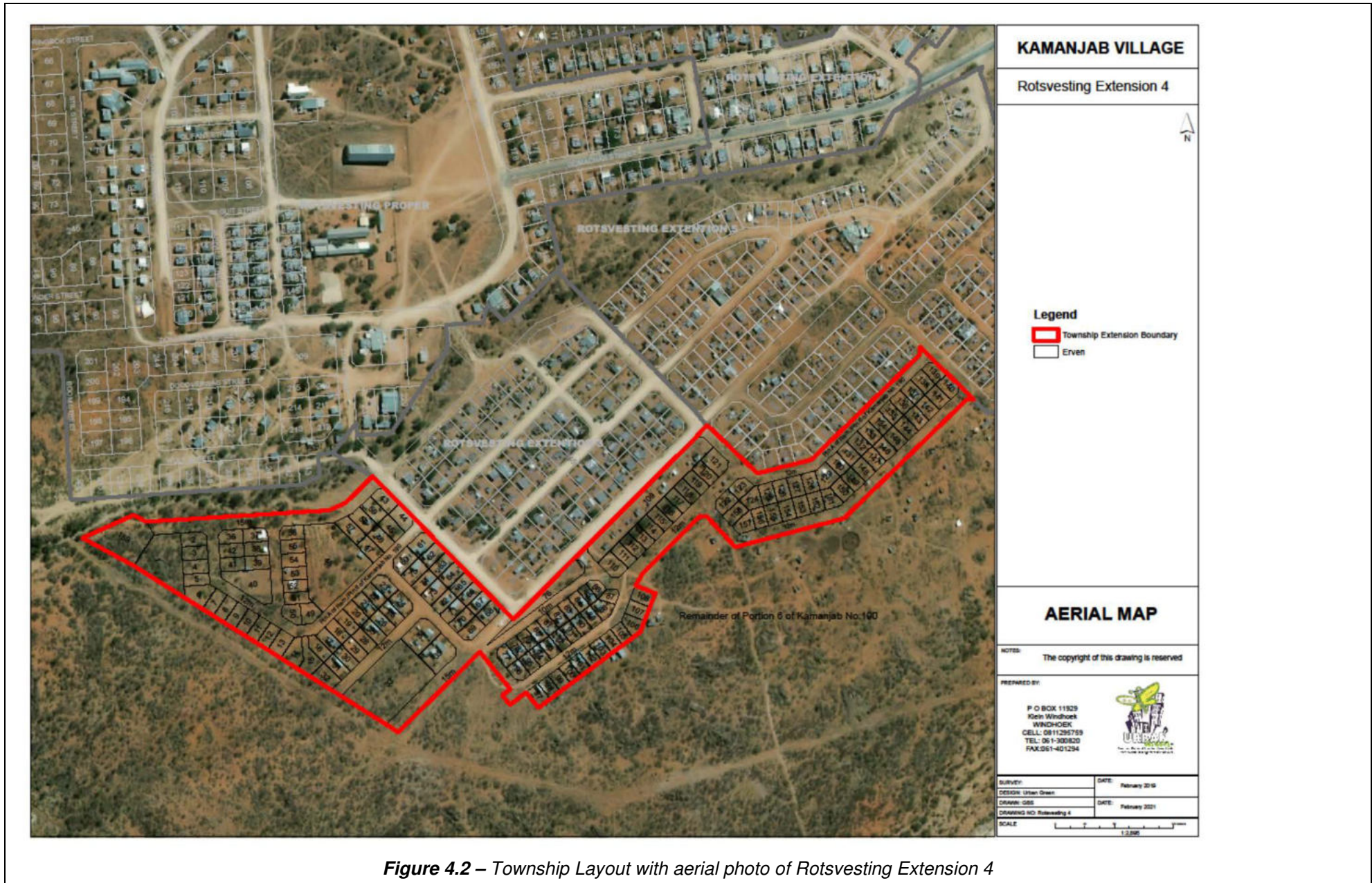


Figure 4.2 – Township Layout with aerial photo of Rotsvesting Extension 4

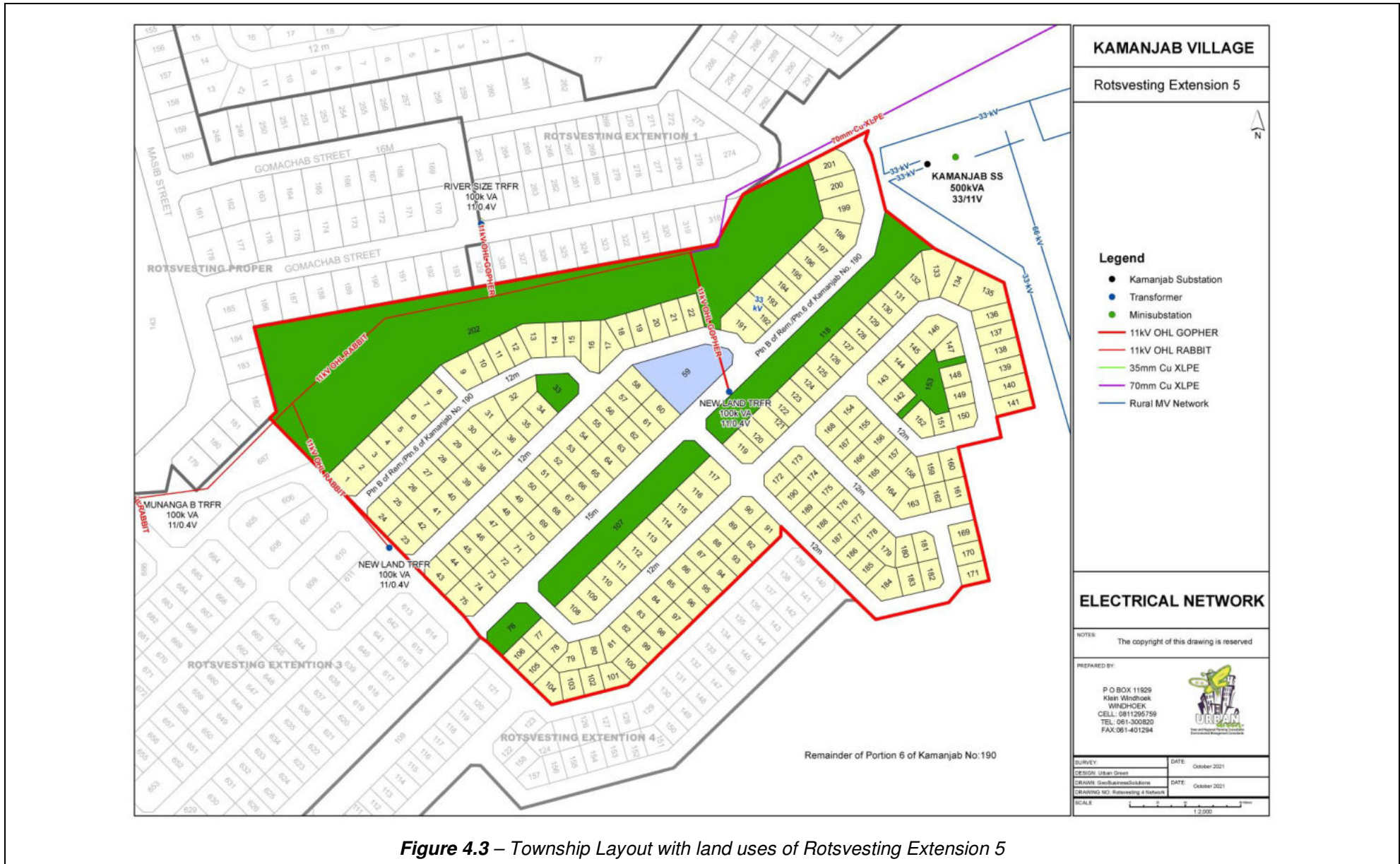


Figure 4.3 – Township Layout with land uses of Rotsvesting Extension 5

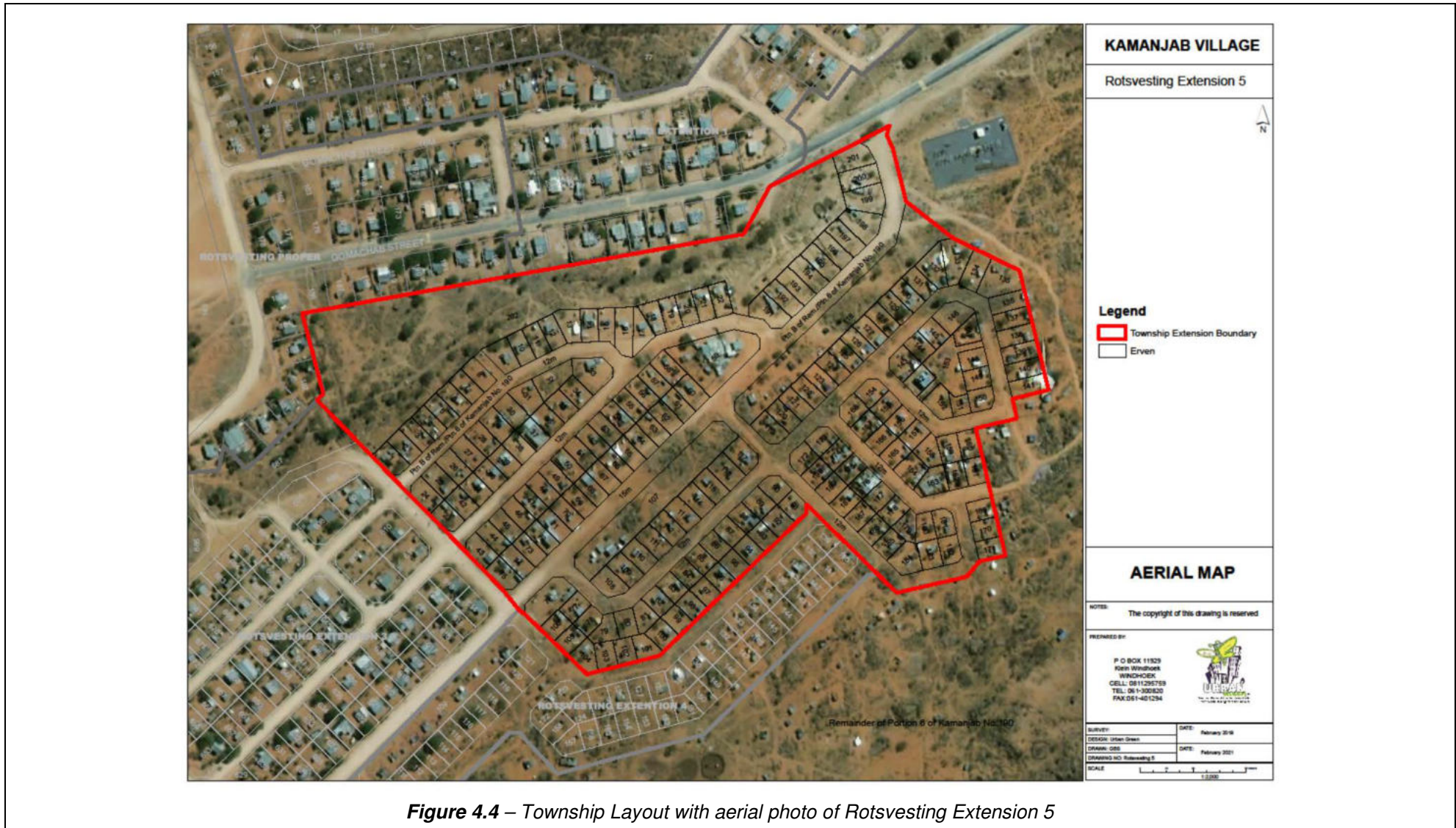


Figure 4.4 – Township Layout with aerial photo of Rotsvesting Extension 5

## **4.5 RESOURCE DEMAND AND MUNICIPAL SERVICES**

As mentioned in Section 4.3 existing bulk infrastructure of Rotsvesting Proper and its existing Extensions will be expanded to accommodate the additional two extensions. No major new infrastructure developments are thus envisaged for this purpose, but only extensions of existing infrastructure.

### **4.5.1 ROAD INFRASTRUCTURE & ACCESS**

Apart from Main Street (the prominent north-south road passing through Kamanjab Proper) and the main entrance into Rotsvesting Proper being tar roads, all other roads within the formal townships are gravel roads. The roads within Extension 4 and 5 are also gravel roads.

Access to the Rotsvesting Extensions 4 & 5 townships is obtained via the existing gravel road network of the larger townships (i.e. Rotsvesting Ext 1 & 3) and are such to form one larger integrated street network providing access throughout larger Village (Refer to Fig. 4.2 and 4.4).

### **4.5.2 WATER INFRASTRUCTURE**

Both informal townships (Rotsvesting Extensions 4 & 5) have central located water points. The two townships totalling about 1 795 residents have had a daily demand of 35 000l to 37 000l, which has been supplied successfully over the last few years. Water is supplied via the existing main water supply network already in place. Refer to Section 5.4.3.2 for an overview of the town's water infrastructure.

Five additional boreholes were drilled in February 2022, and the water is pumped into the town's reservoir. In addition, the Village Council approved for more boreholes to be drilled. The Namwater dam as well as the Kamanjab dam will consequently be used to full capacity (see Photo 5.3 and 5.4 in Section 5.4.3.2). Solar panels are used to pump water from the newly drilled boreholes to reduce electricity costs.

Water samples from the new boreholes were tested by an approved laboratory. The results indicated which chemicals are required and aqua services will assist to treat the water appropriately. (*pers. comm. Nguaike, B.M., 2022*)

### **4.5.3 ELECTRICITY SUPPLY & INFRASTRUCTURE**

Provision of electricity to the activities within the Kamanjab Village and Townlands is done by Central North Regional Electricity Distributor (CENORED). Refer to Section 5.4.3.3 for a description of the electricity infrastructure and to Appendix C for the Map of the Electricity Network in Kamanjab Village. Electricity is supplied from a local distribution centre situated to the south of Kamanjab and east of Rotsvesting and will be expanded into Rotsvesting Extension 4 and 5.

In line with the Electricity Act No. 4 of 2007, CENORED request that proposed township layout should accommodate existing electrical networks and that servitudes should be designed to

accommodate already developed infrastructure (see Appendix C). Should the existing electrical networks be altered or moved, the cost implications should be considered in the project budget.

#### **4.5.4 HOUSEHOLD WASTE SYSTEM**

The types of waste generated are of a household nature (i.e. residential activities), as well as that associated with business. A variety of dry- (i.e. paper, plastic, tins and glass) and organic waste (i.e. kitchen waste) are generated.

Hazardous waste, defined as 'those substances which may cause injury or ill-health to or death of human beings' will be of a residential nature in terms of type (i.e. cleaning liquids) and volume.

Waste removal from formal townships will be the responsibility of the Village Council. Refer to Section 5.4.3.6 for a description of waste removal in the village.

The inadequacies experience in the past with waste removal, due to lack of monetary resources and management, should be addressed to avoid potential impact on the surrounding environment and below ground water resources. Both of which are vulnerable.

#### **4.5.5 SEWERAGE**

Kamanjab Township and the larger part of Rotsvesting Proper, Rotsvesting Extension 1, 2 and 3 has been upgraded from a septic drain system to a water borne sewer system. The sewerage is pumped into oxidation dams located 500 m south-west of Rotsvesting Proper (see Photo 5.6 in Section 5.4.3.4). The remainder of Rotsvesting and the extended townships (Rotsvesting Extension 4 and 5) will be linked with this water borne sewer system. During the interim, Rotsvesting Extensions' sewer was pumped by the Local Authority on request by residents. (*Urban Green, 2011*)

#### **4.5.6 STORMWATER**

No prominent rivers exist within the Project Site, with minor drainage channels passing Rotsvesting Extensions 4 and 5 to the north (refer to Figure 5.2 in Section 5.2.5). No flooding occurs here apart from a few puddles that remain after heavy rains, mainly due to the area's topography and drainage being effective and efficient. Refer to Section 5.2.5 for the topography and drainage of the area.

Consequently, stormwater infrastructure within the village is limited to stormwater culverts next to the tar road and ducts next to the gravel roads. No other stormwater infrastructure exists within the village or at the development site.

#### **4.5.7 TELECOMMUNICATIONS**

Telecommunication is available to most in Kamanjab and some in Rotsvesting, either by way fixed lines (Telecom Namibia) and/or mobile network (MTC).

## 4.6 CONSTRUCTION AND OPERATIONAL ACTIVITIES

Township development is generally associated with the following activities during both the construction phase and the operational phase:

### 4.6.1 CONSTRUCTION ACTIVITIES

Activities associated with the construction phase, both during bulk infrastructure and construction of buildings, but not necessarily limited to, are:

- Setting-up of a temporary –
  - construction yard;
  - site office and parking area;
  - workshop and stores;
  - batching area;
  - ablution facilities;
  - solid waste disposal facility;
  - stockpile area; and
  - area for the handling of hazardous substances, wash bays, bulk storage and dispensing of fuel.
- Demolition of existing structures.
- Clean up of existing dumpsites and smaller points of pollution currently on-site.
- Clearance of vegetation, stockpiling and removal from site.
- Removal of topsoil and storage.
- Dumping of large quantities of unsuitable material.
- Access to and from the site by construction and delivery vehicles.
- Daily commuting of labour force to and from the site.
- Digging of trenches and construction of infrastructure (i.e. roads, electricity, water and wastewater).
- Generation of construction waste, temporary storage and removal from site.
- Usage of water for daily construction activities and generation of wastewater.

The impacts expected to occur during the construction phase are to a certain extent similar to that of the operational phase, although some impacts are exclusive to the construction phase and is short-lived. These impacts, the assessment therefore and the mitigations recommended (see Section 7.2.1) are also listed in much detail within the attached Construction Environmental Management Plan (CEMP) in Appendix E.

#### **4.6.2 OPERATIONAL ACTIVITIES**

Activities associated with the operational phase, but not necessarily limited to, are:

- Traffic movement to and from the Township.
- Generation of dry and wet waste, the temporary storage thereof and removal.
- Street lighting.
- Noises associated with the residential and business activities.
- Resource consumption (i.e. electricity; water).
- Use of pesticides and herbicides; paint, petrol & diesel spillages.
- Routine maintenance on bulk and internal services and servitude maintenance.

#### **4.7 SOCIO-ECONOMIC CONTRIBUTION**

The Township Development is expected to have a direct and indirect positive socio-economic impact, especially in this remote region during the current poor economic conditions. These positive impacts can briefly be summarised as:

- Supplying in the demand for developable land within the Kamanjab Village.
- Enabling land ownership and economic empowerment.
- Employment and skill transfer during both the construction phase and the operational phase.
- Economic Benefit to the Construction Industry
- Additional rates and taxes to the local authority.

The Development is expected to have a general Socio-Economic uplifting impact, which is much required in the desolate Kunene Region.

## **5 THE AFFECTED ENVIRONMENT**

This chapter describes the details pertaining to the Development's locality, the existing physical and bio-physical environment of the surrounding area, urban as well as socio-economic and cultural-historic characteristics. The description has been compiled based on secondary information received as well as studies and EIAs conducted by Urban Green in the Kamanjab area.

This chapter provides the basis for assessing the likely negative and positive impacts that the Development might have on the receiving environment (e.g. biophysical and social).

### **5.1 LOCALITY**

Kamanjab Village is located to the central eastern part of the Kunene Region (see Figure 5.1). The Village is located 113km north of the Region's Administrative Capital, Khorixas.

Rotsvesting Extensions 4 & 5 is located within Kamanjab Village, forming part of the informal settlement developments to the south thereof (see Figure 5.3).



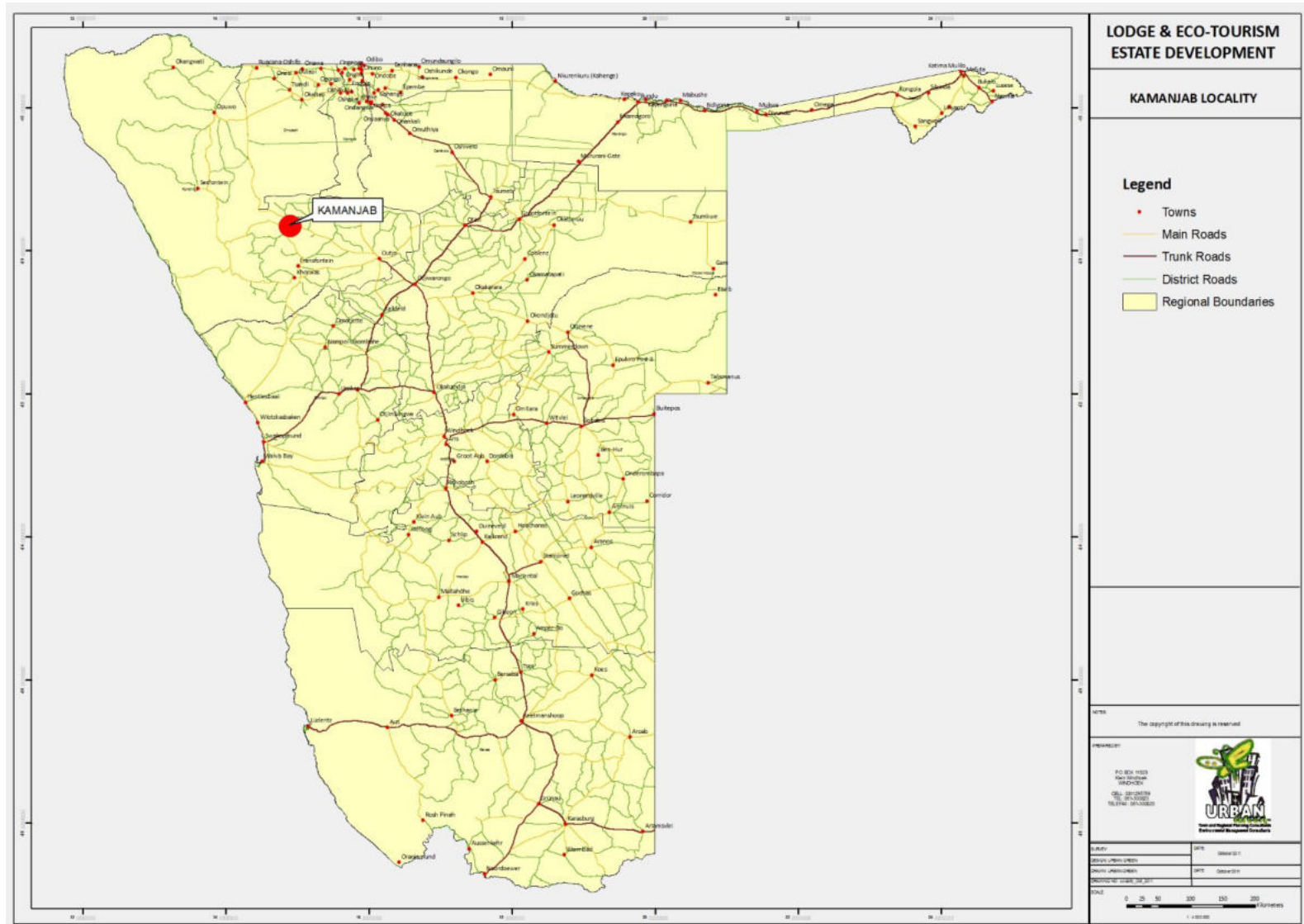


Figure 5.1 – Locality Map of Kamanjab Village

## 5.2 PHYSICAL ENVIRONMENT

The natural environment is typical of the *Kamanjab Plateau* dominated by *Mopani Savannah* with grasslands and scattered trees and/or mixed woodlands. The landscape is defined by various granite outcrops and larger mountains with plains and rivers/tributaries in between.



*Photo 5.1 – View of natural landscape within the Kamanjab Village*

### 5.2.1 CLIMATE

The study area situated within the Kamanjab Plateau has an arid climate typified as very hot and dry in summer and moderate dry winters. As a result, the area has a fairly low frost potential.

#### 5.2.1.1 Rainfall

Rainfall is highly erratic and unpredictable with the highest rainfall months being December to March. Earlier rainfall may occur in November, while late rainfall often falls in April. The average annual rainfall for Kamanjab area is 250 – 300 mm, while the average evaporation rate is in the region of 2,100 – 2,240 mm a year (*Mendelsohn et al. 2002*). Humidity range between 10 to 20%, being very low. Evaporation thus exceeds rainfall by far, resulting in a water deficit, of 1,700 to 1,900mm/year. Occasional flooding occurs along the more prominent ephemeral river courses, but is generally very short-lived. These observations confirm the conclusions regarding the limited groundwater recharge potential (see Section 5.2.4).

### 5.2.1.2 Temperature

During winter months the average minimum temperature is 6 – 8 °C, while the average maximum day temperature during summer is 32 – 34 °C (*Mendelsohn et al. 2002*).

### 5.2.1.3 Wind

Easterly winds predominate throughout the year, followed by southerly and north-easterly winds. The months of August and early September can be very windy, causing wind erosion when soil cover is low, especially after heavy grazing or land clearing activities.

### 5.2.1.4 Solar

Kamanjab is situated within that part of Namibia expected to have of the highest solar radiation (6.2 to 6.4 kWh/m<sup>2</sup>/day). This is caused by the amount of sunshine hours per day (9 to 10 hours) and little cloud cover (*Mendelsohn et al, 2002*).

## 5.2.2 AIR QUALITY

Given the rural character of the larger area and absence of any large scale industries, the air quality is regarded as very good. The informal townships within Kamanjab dependent on wood fuel, is expected to cause some pollution, but is regarded as of no significance given the small amount of households that depend on this resource. Vehicle emissions and dust are expected to be confined within the vicinity of the gravel and dirt roads, but the increase in vehicle movement will contribute to general pollution levels of the surrounding area.

## 5.2.3 GEOLOGY AND SOILS

Kamanjab is situated on the Kamanjab Plateau. The predominant geology comprises granite of the Fransfontein Granite Suite, Huab Metamorphic complex and meta-sediments of the Khoabendus Group. These complexes hold the oldest rocks which consist of a mixture of igneous and metamorphic rocks of which some have economical valuable deposits. Various minerals (e.g. gold, copper, lead & zinc) are found within the surrounding area.

Kamanjab Village is underlain by Fransfontein granites. The granite is poorly weathered and forms massive outcrops scattered across the country-side. Weathering of rocks produces soil and granite soil consists mainly of quartz, feldspar and mica. The quartz remains mostly unweathered, while both the feldspar and mica weathers to clay material. The weathering product is thus a mixture of clay and quartz. Fransfontein granites consist of more than 52% quartz and albeit, suggesting that soils formed by weathering of these granites will be quartzitic rather than clayey (*Hedberg's 1979*).

The area of Kamanjab and surroundings is characterised by rocky outcrops with *Leptosols* as the dominant soil type. A *leptosol* typically forms in actively eroding landscapes. It is coarse-textured and very shallow (usually less than 30 cm deep). Because of the texture, a leptosol's water-holding capacity is low and the rate of water run-off and water erosion can be high when heavy rains fall. These characteristics are enhanced by the suggested quartzitic nature of the

soil as a result of granite weathering. These soil characteristics are of significant importance, primarily relating to its capability of transporting pollutants.

#### **5.2.4 HYDROGEOLOGY & WATER QUALITY**

Kamanjab is situated on the edge between an area regarded as having little or no groundwater and a moderately productive aquifer flowing northwards (*Mendleson et al. 2002*). Consequently, groundwater in the Kamanjab area varies from weak to very strong yielding boreholes within a distance of a few kilometres. It is thus possible that localised higher yielding boreholes can be sunk where nice open joints are found and the resultant local permeability is relatively high (*Van Vuuren, 2011*).

The groundwater potential of the Kamanjab area is determined by the unique geology of the granite and gneiss. Groundwater occurs in joints or secondary aquifers, which display a high degree of heterogeneity (variation in rock properties with location in a reservoir) and anisotropy (variation of a property of a material with the direction in which it is measured), with the few high-permeable zones constituting preferential flow paths closely related to fractures or joints in the hard rock. These structures and occurrences are, however, not well developed and groundwater reserves are very limited and highly dependent on frequent recharge from surface run-off. Groundwater recharge is either localised or through interconnected joints within the granite and gneiss massifs. (*Van Vuuren, 2011*)

Due to these factors, groundwater recharge and storability in the area was limited groundwater abstraction not sustainable in the long term – even more so during periods of low rainfall or drought. Recurring water supply problems were experienced in the Kamanjab Village and directly linked to the geological and climatological factors mentioned. Given this limited storativity and low yield, the Kamanjab Dam and other water schemes were developed to meet the increasing future supply demand (*Namibia Water Corporation, 2009*).

Water quality in the area is regarded as good having a total-dissolved-solids of less than 1,000 to 2,000 mg/l. However, the prevailing chemical quality of the groundwater indicates a general high fluoride content, inherent to the granite geological environment, together with elevated levels of nitrate, sodium and chloride. The lack of frequent recharge and the long residence time of the groundwater in the prevailing geological environment further decrease the quality thereof (*Van Vuuren, 2011*).

#### **5.2.5 TOPOGRAPHY & DRAINAGE**

The dominant topography of the larger area can be described as undulating plains with mountains, characterised with rocky granite outcrops scattered around with lower laying valleys following the tributaries. The rocky outcrops vary from very steep slopes to moderate slopes, while the valley bottoms are flat and soil covered.

Apart from one prominent tributary passing Kamanjab to the north-western side, no other prominent drainage channel exists within the town. A few smaller drainage channels however exist determined by the topography of outcrops in the village. These channels form part of the catchment area for the Huab River flowing westwards to the Atlantic Ocean (refer to Figure 5.2).

Apart from a few puddles remaining after the rains no flooding has occurred in any part of either the Townships of Kamanjab or Rotsvesting. This is mainly because of the topography of the larger area being fairly flat with prominent drainage lines channelling water effectively and efficiently out of the urban areas.



Figure 5.2 Kamanjab Topography and Drainage

## 5.3 BIO-PHYSICAL ENVIRONMENT

### 5.3.1 FLORA

Kamanjab is situated on the border between the *Western Highlands* and *Karstveld*. The vegetation form part of the *Tree-and-shrub Savanna* biomes, characterised by large open expanses of grasslands and scattered trees and/or mixed woodlands (*Mendelsohn et al. 2002*). The area is commonly referred to as the *Mopani Savannah* (*Giess 1971*).

The Huab River and tributaries (Kamanjab and Okatambo Rivers), as well as the entire Kaokoveld area are viewed as sites of special ecological importance due to the biotic richness; large desert dwelling mammals and high value for human subsistence and tourism (*Barnard, 1998*).

The Mopane Savannah, as the name implies, is characterised by *Colophospermum mopane* in tree and shrub form, while the grasses are varied and dependant on soil types. Trees are mainly associated with the various drainage lines whilst shrubs dominate the plains. Grasses are dominated by *Entoplocamia aristulata*, *Stipagrostis hirtigluma* and *Schmidtia kalahariensis* (*Giess 1971*).



**Photo 5.2** Vegetation with Rocky Outcrops Rocky Outcrops in Kamanjab

### 5.3.1.1 Tree and Shrub Diversity

It is estimated that at least 59-100 species of larger trees and shrubs (>1m) occur in the general Kamanjab area. Forty-five (39.5%) of these species have some kind of protected status. (*Curtus and Mannheimer, 2005*) *Adenia pechuelii* (endemic and near-threatened), *Adenium boehmianum* (potentially threatened) and two of the endemic *Commiphora* species (*Commiphora saxicola* and *C. virgata*) as well as the endemic *Antiphiona fragrans* and *Ceraria longipendunculata* were highlighted as the trees/shrubs most sensitive. (*Cunningham, 2011*)

*Albizia anthelmintica*, *Boscia albitrunca*, *Colophospermum mopane*, *Combretum imberbe*, *Commiphora glaucescens*, *Kirkia acuminata*, *Maerua schinzii*, *Sterculia africana* and *Ziziphus mucronata* are the most important tree/shrub species occurring in the area and are protected under the Forestry Ordinance No. 37 of 1952 and/or Forest Act No. 72 of 1968.

### 5.3.1.2 Grass Diversity

Of the 59 grasses expected to occur in the general Kamanjab area, only 1 species is viewed as endemic (*Pennisetum foermeranum*). *Pennisetum foermeranum* is associated with rocky mountainous terrain and consequently expected from the mountainous areas.

### 5.3.1.3 Species of special concern

The western escarpment – including the Kamanjab area – is an important area in Namibia with numerous endemic and near-endemic species as well as a host of other plant species classified with some kind of formal protection.

The most important plant species occurring in the general area are probably *Adenia pechuelii* (endemic and near-threatened) and *Adenium boehmianum* (potentially threatened) and two of the endemic *Commiphora* species (*Commiphora saxicola* and *C. virgata*) as well as the endemic *Antiphiona fragrans* and *Ceraria longipendunculata*. The most important grass expected in the area is the endemic *Pennisetum foermeranum* associated with rocky habitat.

Aloes are protected throughout Namibia and *Aloe buettneri*, *A. dinteri* and *A. hereroensis* may potentially occur in the area. Some lichen species are also expected to occur on rocks in the hills of the area (*Cunningham, 2011*).

## 5.3.2 FAUNA

The terrestrial diversity is regarded as high due to the mountainous nature of the landscape with intersections of rocky terrain and major ephemeral river courses. This unique landscape's overall endemism is also high (*Mendelsohn et al. 2002*).

It is estimated that at least 66 reptile, 9 amphibian, 75 mammal and 185 bird species (breeding residents) are known to or expected to occur in the general Kamanjab area of which a high proportion are endemics (*Cunningham, 2011*).



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The general Kamanjab area is regarded as “high” in overall terrestrial fauna endemism (*Mendelsohn et al. 2002*) with amphibian endemism of 55.6%, reptile endemism of 42.4%, mammal endemism of 13.3% and bird endemism of 6.5% (*Cunningham, 2011*).

### 5.3.2.1 Reptile Diversity

At least 66 species of reptiles are expected to occur in the general Kamanjab area with 28 species being endemic (42.4%). Three species expected to occur in the area (*Stigmochelys pardalis*, *Python natalensis* and *Varanus albigularis*) are classified as vulnerable and 3 species with a status of “insufficiently known” (*Python anchietae*, *Mehelya vernayi* and *Prosymna visseri*) and last 2 species furthermore also viewed as probably “rare”. Species classified as protected game include *Stigmochelys pardalis*, *Python anchietae*, *Python natalensis* and *Varanus albigularis*. Nine species have an international conservation status and 4 species furthermore classified under the South African Red Data Base with *Python natalensis* classified as vulnerable and *Naya nigricincta* as rare although are more common in Namibia than South Africa.

The 66 species expected to occur in the general area consist of at least 25 snakes (3 Thread snakes, 2 Python, 1 Quill Snouted and 19 typical snakes) of which 10 species are endemic (52.6%), 1 tortoise, 1 terrapin, 2 worm lizards, 16 lizards of which 5 species classified as endemic (31.3%), 4 plated lizards, 1 monitor, 3 agamas (1 endemic), 1 chameleon and 12 geckos of which 10 species classified as endemic (83.3%).

Gecko's (12 species with 10 species being endemic) and snakes (25 species with 10 species being endemic) are the most important groups of reptiles expected from the general Kamanjab area followed by lizards (16 species with 5 species being endemic). Geckos expected and/or known to occur in the general Kamanjab area have the highest occurrence of endemics (83.3%) of all the reptiles in this area (*Cunningham, 2011*).

### 5.3.2.2 Amphibian Diversity

The frog diversity in the general Kamanjab area is estimated at between 8-15 species. (*Mendelsohn et al. 2002*).

9-15 species of amphibians can occur in suitable habitat in the general Kamanjab area. Of these, 5 species are endemic (55.6%) of which 2 species (*Poyntonophrynus damaranus* and *Tomopterna damarensis*) are also classified as “unknown and data deficient”.

The most important species are viewed as the endemic and recently described *Poyntonophrynus damaranus* (Damaraland Pygmy Toad) and *Tomopterna damarensis* (Damaraland Sand Frog) which are only known to occur in a few locations in the general Damaraland area (*Cunningham, 2011*).

There is thus a high level of amphibians of conservation value (i.e. 55.6%) from the general area although suitable habitat such as fountains and temporary pools in the ephemeral river systems are limited.

### 5.3.2.3 Mammal Diversity

The mammal diversity in the general Kamanjab area is estimated at between 76-90 species with 5-6 species being endemic to the area (*Mendelsohn et al. 2002*).

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At least 75 species of mammals are known and/or expected to occur in the general Kamanjab area of which 10 species (13.3%) are classified as endemic. The Namibian legislation classifies 10 species as vulnerable, 2 species as rare, 5 species as specially protected game, 9 species as protected game, 5 species as insufficiently known, 3 species as huntable game and 2 species as problem animals. At least 33.3% (25 species) of the mammalian fauna that are expected to occur in the Kamanjab area are represented by rodents of which 5 species (20%) are endemic. This is followed by 18 carnivore species (24%) of which 2 species (11.8%) are endemic and bats with 12 species and 1 species (8.3%) being endemic (*Cunningham, 2011*).

#### **5.3.2.4 Avian Diversity**

Bird diversity is viewed as “high” in the general Kamanjab area with 171-200 species estimated and 6-7 species being endemic (*Mendelsohn et al. 2000*).

At least 185 species of terrestrial (breeding residents) birds occur and/or could occur in the area at any time. Twelve of the 14 Namibian endemics are expected to occur in the general area (85.7% of all Namibian endemic species or 6.5% of all the species expected to occur in the area).

The most important birds expected to occur in the area are the endemic species with Rüppell’s Parrot, Rüppell’s Korhaan and Herero Chat probably the most important although not exclusively associated with the proposed development site (*Cunningham. 2011*).

## **5.4 BUILD-UP ENVIRONMENT**

### **5.4.1 OVERVIEW**

The ‘former white township’ (Kamanjab) and the ‘previous black township’ (Rotsvesting) is characteristically of segregated planning applied by the previous apartheid Government (prior to 1990). With the establishment of Rotsvesting Extension 2, central located between the two townships, Kamanjab and Rotsvesting townships were made one integrated larger town.

### **5.4.2 PROCLAIMED VILLAGE AND TOWNSHIPS**

Kamanjab Village and it’s Village Council was proclaimed in 1958 and has the status of “Village” as determined by the Local Authorities Act. No. 23 of 1992 (as amended).

The Village’s administrative responsibility vests with the Kamanjab Village Council, as provided for by the Local Authorities Act, No. 23 of 1992, as amended. Basic infrastructure, i.e. potable water, electricity and sewer, are available to all the formal townships (i.e. Kamanjab Proper; Rotsvesting Proper & Extensions 1, 2 & 3), while some infrastructure (central located water points and electricity) has been provided to Rotsvesting Extensions 4 & 5.

Various Government services are also available, however limited.

Kamanjab Townlands is situated on Portion 6 of the Farm Kamanjab No. 190, which was again subdivided into various portions on which the townships of Kamanjab Proper (Ptn 7/190) and Rotsvesting Proper (Ptn 8/190) was originally established (see Fig. 5.3).

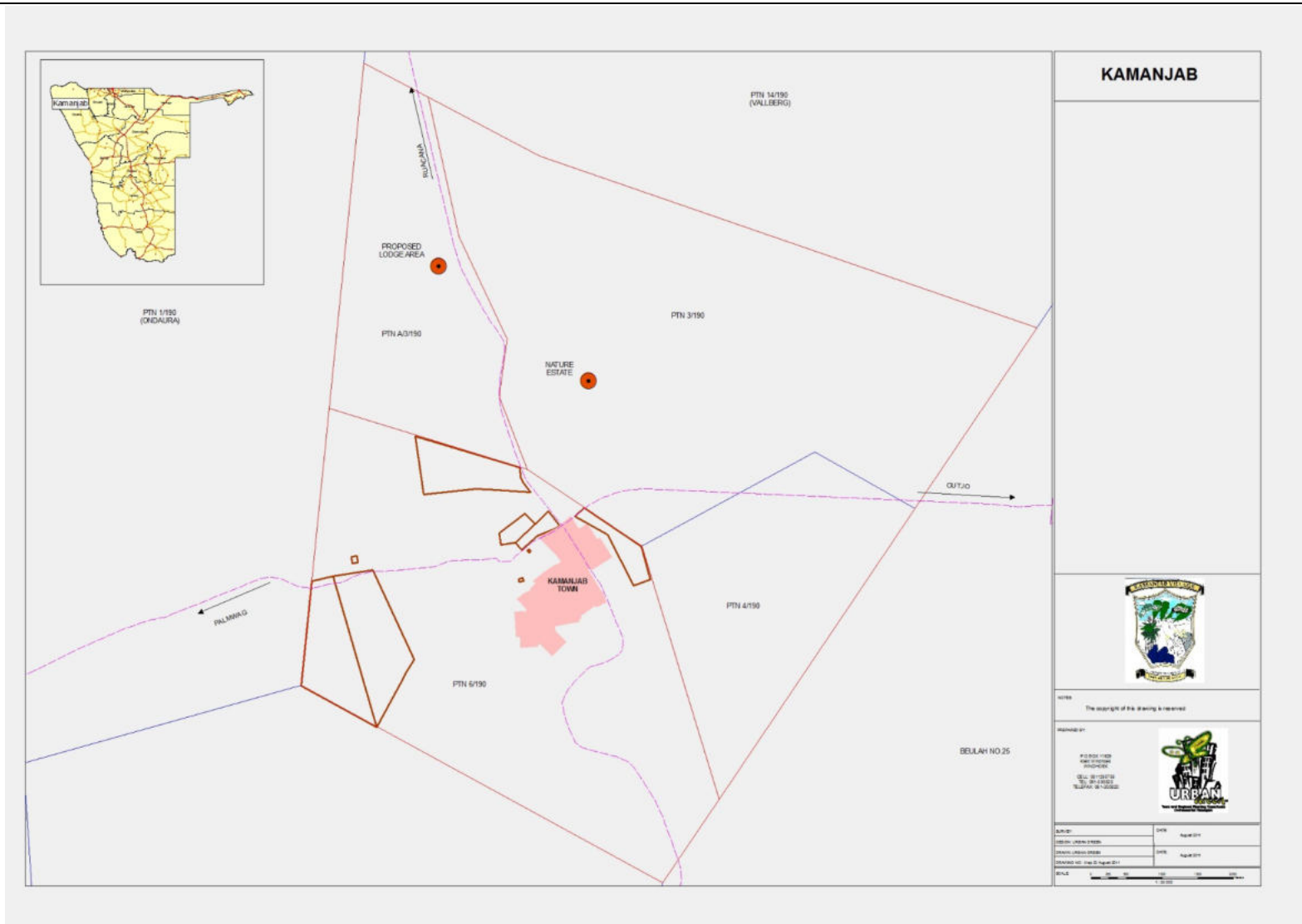
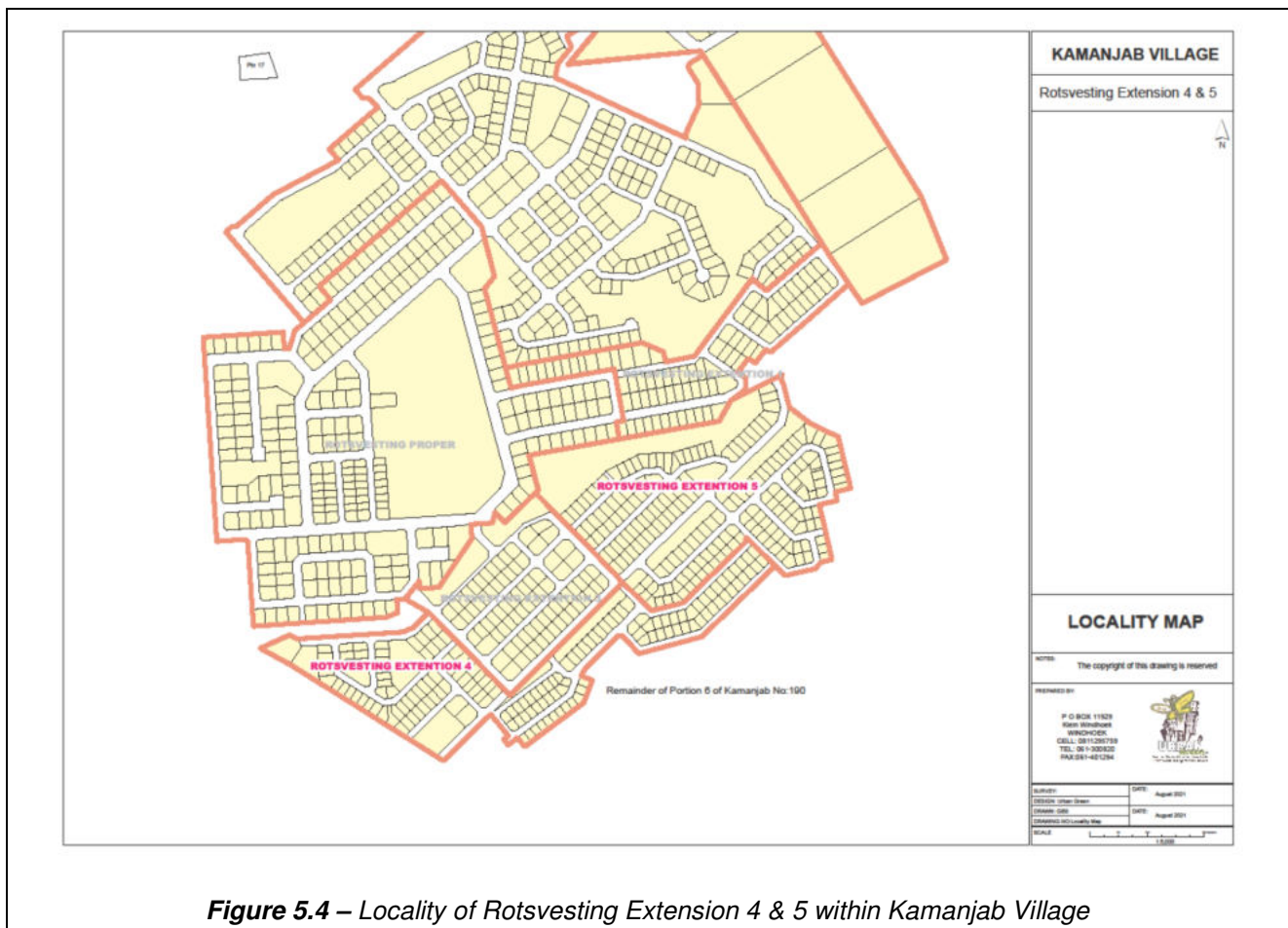


Fig. 5.3 – Kamanjab Village Townlands

Rotsvesting Extension 1 was proclaimed on 1 October 1997, while Rotsvesting Extension 2 and 3 is in the process of being proclaimed as formal townships (*Urban Green, 2011*). These areas are serviced with water, electricity (above ground) and sewer (combination of French drains and water born sewer system).

Rotsvesting Extension 4 and 5 will form part of the Kamanjab Village and is located to the southern parts of the Kamanjab Townlands (refer to Fig. 5.4). The larger part of the Townlands is still undeveloped (see Fig. 5.3).



**Figure 5.4 – Locality of Rotsvesting Extension 4 & 5 within Kamanjab Village**

### 5.4.3 BULK INFRASTRUCTURE AND SERVICES

Infrastructure in the Kunene Region, such as roads, telecommunication and electricity networks exist and are fairly well developed, especially in the more prominent urban centres. It is, however, less developed in comparison with neighbouring regions, mainly due to the sparse population.

The larger Kamanjab Village presents a variety of well-developed bulk service infrastructure (e.g. electricity, sewer and water) with a good internal road network (tar and gravel roads).

#### 5.4.3.1 Access and Road Infrastructure

Accessibility is regarded as good, since Kamanjab is strategically situated on the C35 (Uis to Ruacana) road network. Linkage with the Central parts of Namibia is made possible via the C40

(Outjo) tar road linking-up with the B1 at Otjiwarongo. The C35 north of Kamanjab to Opuwo is a tar road, while the road to Uis (Southern C35) is gravel road.

#### 5.4.3.2 Potable Water Infrastructure

Bulk water infrastructure of Kamanjab resorts under the jurisdiction and management of Namwater. In order to establish groundwater sustainability, the bulk supplier of water to Kamanjab realised that some form of artificial or enhanced recharge was required. As a result, the Kamanjab dam (see Photo 5.3) was constructed just north-west of the town and a number of production boreholes were sunk in the dam's vicinity. These production boreholes in the vicinity of the Kamanjab Dam benefit considerably in terms of yield and quality after inflow and subsequently enhance the recharge of this local groundwater environment. The mentioned scheme was later on extended to the limestone aquifers about 20 km to 30km to the east of Kamanjab.

Bulk infrastructure now consists of various production boreholes situated in and around the Kamanjab Dam (artificial or enhanced recharge), Kamanjab Airport well field 10 km north of town and the limestone aquifers about 20 km to 30 km east of town at the Kalkrand well field. Bulk water is supplied to the town reservoirs (see Photo 5.4) by Namwater from where water is internally distributed to all residents within the Townships by the Village Council.



**Photos 5.3**– View of a borehole located within the Kamanjab Dam



**Photos 5.4** -View of the NamWater reservoir located on top of an outcrop.

#### 5.4.3.3 Electricity Infrastructure

Electricity distribution within the Region is the responsibility of the regional electricity distributor - Central North Regional Electricity Distributor (CENORED). A high voltage power line runs from Ruacana to Kamanjab, terminating at a Substation located to the south-east of Rotsvesting, forming part of Rotsvesting Extension 5 (see Photo 5.5).

A well-developed network of transfer stations and electricity lines exists within and surrounding Kamanjab, which was recently upgraded due to 'black-outs' experienced in the past. Electricity

supply throughout the Kamanjab Townships is by way of an overhead electricity grid. Refer to Appendix C for a Map of the Electricity Network in the village.



*Photo 5.5 – View of Electrical Substation*

#### 5.4.3.4 Sewerage Infrastructure

The sewer system of Kamanjab Village has been upgraded to a water borne sewer system, with a few remaining septic tanks. The system drains towards the oxidation dams located south west of Rotsvesting Township (see Photo 5.6 below).



*Photo 5.6 – View of Oxidation Ponds*

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#### **5.4.3.5 Stormwater Infrastructure**

Stormwater drainage systems are limited to culverts next to the tar and upgraded gravel roads of Kamanjab Proper, Rotsvesting Proper and Rotsvesting Extension 1, 2 and 3.

#### **5.4.3.6 Waste Removal**

Removal of domestic and garden waste is the responsibility of the Kamanjab Village Council. The existing waste removal and treatment system is not functioning properly. No service is provided to any of the informal townships situated within the Kamanjab Townlands, being the responsibility of each owner. As a result, solid waste from these properties are dumped and burned by each owner, having various negative implications. The township of Rotsvesting is characterised by heaps of domestic and garden waste lying around.

The dump site situated to the south-eastern outskirts of Kamanjab has never undergone any environmental assessment to determine potential impact on the surrounding environment and below ground water resources. The dump site is in a poor state and is very poorly managed, expected to result in various forms of pollution above and below ground. A town cemetery is provided outside of Kamanjab, about 5 km along the Sesfontein Road (M0126) and another cemetery is planned in Rotsvesting Extension 4.

#### **5.4.3.7 Telecommunication Infrastructure**

Telecommunication services in the area and Kamanjab Village is provided by Telecom Namibia (fixed line telecommunication) as well as MTC (mobile telecommunication).

## **5.5 SOCIO-ECONOMIC ENVIRONMENT**

### **5.5.1 KUNENE REGION**

Compared to the rest of Namibia, the Kunene Region is a relatively underdeveloped region. This is due to the inaccessible mountainous areas and Skeleton Coast Park Conservation Area (western border) that constitutes a large part of the Region, but also due to the harsh climate conditions and resulting low population distribution.

The Region's economy is predominantly based on tourism, commercial agriculture (south-eastern parts) and a dominant small-scale subsistence agricultural sector (in the communal areas west and north-west.). Small scale mining activities do appear, but is not contributing a prominent part to the regional economy (*Kunene Regional Council, 2015*).

Health and social services are scattered throughout the Region located at the more prominent urban centres, although small compared to other urban areas in the neighbouring Regions. Due to the size of the Region and low population density, only 46% of the Region's population live within a radius of 10km from a health facility. Educational facilities are equally scattered throughout the Region with only 43% of the Region's children having access to these facilities within a radius of 5km. The urban population's children make up the large percentage of this 43% (*NPC 2011*).

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## 5.5.2 KAMANJAB VILLAGE

Kamanjab is a small urban settlement situated central within the Kunene Region providing in the basic needs of the residents and surrounding areas. The Village has a population of  $\pm 6,000$  people, dependent on the agricultural and tourism sectors for their primary income (*NPC, 2011*). Employment within the Village itself is limited to a few private businesses and public institutions. Basic infrastructure available to all formal activities are managed by the Kamanjab Village Council. Government services are also available, however limited.

Economic activities within the urban area consist of predominantly service delivery, being the public sector i.e. Kamanjab Village Council, Kunene Regional Council (Extension Office), Ministry of Agriculture, Water and Forestry (Extension Office), Ministry of Justice (Magistrate Court), Ministry of Education (schools), and Ministry of Health and Social Services (Government Clinic). The Parastatals present are Telecom Namibia, Nampost and CENORED. A few private businesses (service station, garages, retail shops, general store, small informal shop, butchery, tourism accommodation establishments; restaurants and shebeens) also exist.

The socio-economic conditions of the majority of residents living in the larger Kamanjab can be described as challenging and of low income status. Most residents depend on secondary income from their relatives employed elsewhere in the Region, while many are unemployed. Employment by the surrounding tourism and agriculture activities result in many women and/or children staying with families in Kamanjab, while their relatives work at surrounding farms and tourism institutions. This further results in various social difficulties and problems experienced by the urban community.

The township of Rotsvesting accommodates the majority of residents ( $\pm 70\%$ ) while Kamanjab accommodates the remaining  $\pm 30\%$ . Almost all formal, private and public services are located within the township of Kamanjab Proper, with a few smaller private businesses (small shops & shebeens) and informal traders situated within the Rotsvesting Townships. Health services are provided by a Government clinic situated in Kamanjab Proper.

Educational facilities are provided in the form of two primary schools, the one situated in Kamanjab Proper (Kamanjab Combined – Grade 10) and the other in Rotsvesting Proper (DF Uirab Primary – Grade 7). A substantial amount of churches of different denominations are located throughout.

Formal housing with the larger Kamanjab Village is well established and within the proclaimed townships, while both informal and formal structures are evident within the un-proclaimed townships, i.e. Rotsvesting Extensions 4 & 5. Refer to Photos 5.7 to 5.10 below.





**Photos 5.7 & 5.8**– View of Business building and Community Centre within Rotsvesting Proper.



**Photo 5.9 and 5.10** - View of formal dwelling structures and informal structures within Rotsvesting

## 5.6 SURROUNDING LAND USES AND DENSITY

The Kunene Region is still predominantly rural based, with only a few proclaimed urban areas (i.e. Khorixas, Outjo, Kamanjab, Opowu). Outjo is the only urban area with Municipal status, while Khorixas has town status and Kamanjab village status (*Local Authorities Act, 23 of 1992, as amended*).

The largest part of the Region is Government owned and used as communal land (small scale agriculture), while the smaller part is in private ownership (agriculture and tourism on freehold land) and a very small part governed by local authorities (declared urban areas). (*Kunene Regional Council, 2015*). The communal land to the north-west and west of the Kunene Region is controlled by Traditional authorities and small scale farmers. Land uses in and around Kamanjab Village are commercial agriculture and eco-tourism, while various lodges, guest farms and hunting farms are situated nearby.

The land uses within Kamanjab Village are typical of a small village characterised by extremely low density developments of a rural-residential nature, having access to all basic bulk infrastructure (e.g. access roads, electricity and water) services (*Kunene Regional Council, 2015*).

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The Kunene Region is regarded as medium in size (115 293km<sup>2</sup>) with a population density of 0.6 persons per km<sup>2</sup>, the second lowest in Namibia. The Region has an average size population (86,856 people), representing 4% of the Namibian population, with a below average population growth of 1.9% (2.9% Namibian) (*NPC 2011*). Very little increase in population is expected for this Region, though an increase in urbanisation is expected, similar to that of the other Regions.

## 5.7 CULTURAL, ARCHAEOLOGICAL & HERITAGE

Kamanjab and surroundings like many other smaller villages have some historical significance and role to play towards the present day history of Namibia.

The Peet Alberts Koppies, a National Monument proclaimed on 1 May 1967, is situated on the Remainder of Portion 3 of the Farm Kamanjab No. 190, ±10 km east of Kamanjab Village. This National Monument host around 1,200 to 1,500 rock engravings known to have the biggest and oldest engravings in the Country (*Vogt, A. 2004*). The Koppie was used as a shelter by the Bushman and Khoekhoen Hottentot people as long as 25,000 years ago. As a result, the Peet Alberts Koppie is a famous and well-visited tourist attraction in the Kunene Region.

The Village of Kamanjab, an Otjiherero name, does not have any registered historical significance itself. No record of any cultural or historical importance or on-site resemblance of any nature was ever identified within the larger Kamanjab Village area.

## 5.8 VISUAL AESTHETICS & SENSE OF PLACE

The natural landscape in the Kamanjab Townlands is typical of the Region's character, which can be described as harsh with rustic scenic- and unique natural beauty defined by the granite outcrops and unique vegetation defining the rural-like sense of place. Refer to Photo 5.1 and 5.2 for the visual aesthetics and natural sense of place of the area.

Natural vegetation within the Kamanjab Village has been disturbed by development and limited to shade trees and some shrubs. The sense of place is typical of a rural settlement with brick buildings and houses in Kamanjab Proper and Rotsvesting Proper and some of Rotsvesting Extension 1, 2 and 3. Temporary corrugated structures are scattered in Rotsvesting Extension 4 and 5 and these now need to be formalised. Refer to Photo 5.9 and 5.10 for the visual aesthetics of the informal settlements.

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## 6 PUBLIC PARTICIPATION PROCESS

Public consultation for the purposes of this project was done as prescribed by Regulations 21 to 24 of the Environmental Impact Assessment Regulations (GN. 30 of 2012). Public consultation and participation are an important aspect of an EA process. During public consultation, potential impacts that the proposed Development may have on the natural and/or socio-economic environments, were identified from the side of interested and affected parties. Consultation with Interested and Affected Parties (I&APs) and relevant Authorities enables transparent decision-making.

This chapter describes in detail the full extent of the public consultation process that was followed and the I&APs and authorities that were notified of the study being undertaken. It also includes the main issues and concerns raised during the public consultation process and comments received on the Background Information Letter (BIL) distributed during the first round of public consultation.

### 6.1 PUBLIC ENGAGEMENT

#### 6.1.1 FIRST ROUND OF CONSULTATION

Engagement with the public and authorities as part of the first round of public consultation commenced on the 18<sup>th</sup> of August 2021 and concluded on the 24<sup>th</sup> of September 2021. During the first round of consultation, I&APs and authorities were given an opportunity to register and submit comments and/or concerns on the proposed project.

##### 6.1.1.1 Activities of Public Engagement

Activities undertaken to date to ensure effective and adequate I&AP involvement, are as follows:

- A list of predetermined I&APs and authorities was compiled. A total of 43 I&APs were included on the database (Appendix D1).
- A notification email (Appendix D2) with Background Information Letter (BIL) (Appendix D3) was sent to all pre-identified I&APs and authorities (Appendix D1) on 18 August 2021.
- Notification letters (Appendix D4) with BIL (Appendix D3) was hand delivered on 18 August 2021 (Appendix D5) to line ministries, State Owned Enterprises, Regional and Local Authorities situated in Windhoek (Appendix D1).
- Notification letters (Appendix D6) with BIL (Appendix D3) was sent via courier (Appendix D7) to State Owned Enterprises, Regional and Local Authorities situated outside Windhoek (Appendix D1) on 16th of August 2021.
- Public notices announcing the commencement of the EA and an invitation to register as an I&AP were placed in the 'New Era' and 'The Namibian' newspapers on 18 August 2021 and 25 August 2021 (Appendix D8).
- On-site notices were placed at the entrances to Rotsvesting Extensions 4 & 5, and at the Kamanjab Village Council (Appendix D9).

### **6.1.1.2 Comments Received and Responses Provided**

All comments and feedback received from I&APs and Authorities are summarised in Table 6.1 below, while a copy of the original correspondence is attached as Appendix D12. A total of 2 I&AP were registered (Appendix D10).

## **6.1.2 SECOND ROUND OF CONSULTATION**

### **6.1.2.1 Activities of Public Engagement**

Activities undertaken to date to ensure effective and adequate I&AP involvement, are as follows:

- A notification e-mail (Appendix D11) with Draft Scoping Report (DSR) was send to all I&APs and authorities on 29 September 2022.

### **6.1.2.2 Comments Received and Responses Provided**

No further comments were received for incorporation into this Report.

**Table 6.1:** Comments received during the first round of public consultation

NO.	NAME	COMMENTS	NAME	RESPONSE
1	MURD Ms F. Sindano (19/05/2021)	Dear Mr. van Zyl We acknowledge, with thanks, receipt of your letter dated 19 May 2021 on the above-captioned subject matter. Your letter has been forwarded to Mr. Big Don Kondunda, Director: Habitat and Housing Development for attention and action. Mr. Kondunda can be reached at 061 297 5062/5017 and email dkondunda@murd.gov.na . We will appreciate the acknowledgement of our emailed communication. Regards, Frieda Sindano Ministry of Urban and Rural Development Tel: 061-297 5181 Fax: 061-258131 Email: fsindano@murd.gov.na	Urban Green cc (20/05/2021)	Dear Ms. F. Sindano, Your email below refers. We acknowledge receipt of your email below. Regards Brand van Zyl
2.	Roads Authority Ms Elina Lumbu (12/08/2021)	Good day Mr van Zyl Would you please send me the document on the subject matter, to enable us to submit our comments? Thanks Regards Acting Senior Specialist Road Legislation, Advice & Compliance NP&C Ms Elina Lumbu	Urban Green cc (18/10/2021)	Dear Ms. E. Lumbu, Find attached the BID for the above mentioned project. Regards Brand van Zyl

NO.	NAME	COMMENTS	NAME	RESPONSE
	Roads Authority Ms Elina Lumbu (15/10/2021)	Good afternoon Please find the attached. Best Regards Acting Senior Specialist Road Legislation, Advice & Compliance NP&C Ms Elina Lumbu	Urban Green cc (18/10/2021)	Dear Ms. Elina Lumbu, Your email below refers. We confirm receipt of your email communication. Regards Brand van Zyl
	Roads Authority CEO Mr C. Lutombi (12/08/2021)	Dear Sir APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE LISTED ACTIVITIES WITH THE TOWNSHIP ESTABLISHMENT OF ROTSVESTING EXTENSIONS 4 & 5 – KAMANJAB VILLAGE – OUTJO DISTREICT: OTJIWARONGO MAINTENANCE REGION Your letter of 18 August 2021 has reference. The following is noted: <ul style="list-style-type: none"> <li>• Kamanjab Village Council intends to establish two new townships, namely Rotsvesting Extensions 4 &amp; 5 within the Kamanjab Village.</li> <li>• An <i>ex post facto</i> Environmental Clearance Certificate needs to be obtained from the Environmental Commissioner, thus Roads Authority's comments were requested.</li> <li>• Access to the two new townships will be obtained via the existing road network of the larger townships (Rotsvesting extensions 1 &amp; 3).</li> </ul>		

NO.	NAME	COMMENTS	NAME	RESPONSE
		<p>Please be informed that the Roads Authority has no objection to the two township development as proposed.</p> <p>Yours sincerely Conrad M. Lutombi Chief Executive Officer</p>		
3	<p>Jolanda Kamburona NAMWATER 24/08/2021</p>	<p>Dear Julia, The abovementioned project refers. Please register NamWater as an I&amp;AP with the following contact details: NamWater's comments: Please ensure that the water supply for Kamanjab is sufficient and sustainable for the extension. Please forward all relevant documentation to us. Regards, Jolanda Kamburona</p>	<p>Urban Green cc (24/08/2021)</p>	<p>Dear Ms. J. Kamburona, Your email below refers. We confirm receipt of your email communication. Regards Brand van Zyl</p>
3.	<p>CENORED Silvester Wayiti (Pr.Eng) Executive: Network Engineering &amp; Expansion</p>	<p>RE: ECC COMMENTS AND REGISTRATION AS AN I&amp;AP Dear Sir/Madam, This is in reference to your invite to register as Interested and Affected Parties and to provide comments/ questions/ and concerns with regards to the application for an Environmental Clearance Certificate (ECC) for the listed activities associated with the township establishment of Rotsvesting Extension 4, and 5, Kamanjab Village , Kunene Region. With this in</p>	<p>Urban Green cc</p>	

NO.	NAME	COMMENTS	NAME	RESPONSE
		<p>mind, herewith our reply:</p> <ol style="list-style-type: none"> <li>1. The proposed township layouts should accommodate existing electrical networks,</li> <li>2. The proposed township layouts should consider designating servitude rights for existing electrical networks.</li> <li>3. If the existing electrical networks have to be altered or moved, the cost implications should be on the developer. This provision is in line with the Electricity Act and its regulations.</li> </ol> <p>Should you have any inquiries on the above, please contact the undersigned.</p> <p>Yours Faithfully            Silvester Wayiti (Pr.Eng)            Executive: Network Engineering &amp; Expansion</p>		



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## **7 ASSESSMENT OF ENVIRONMENTAL ISSUES, POTENTIAL IMPACTS AND MITIGATIONS**

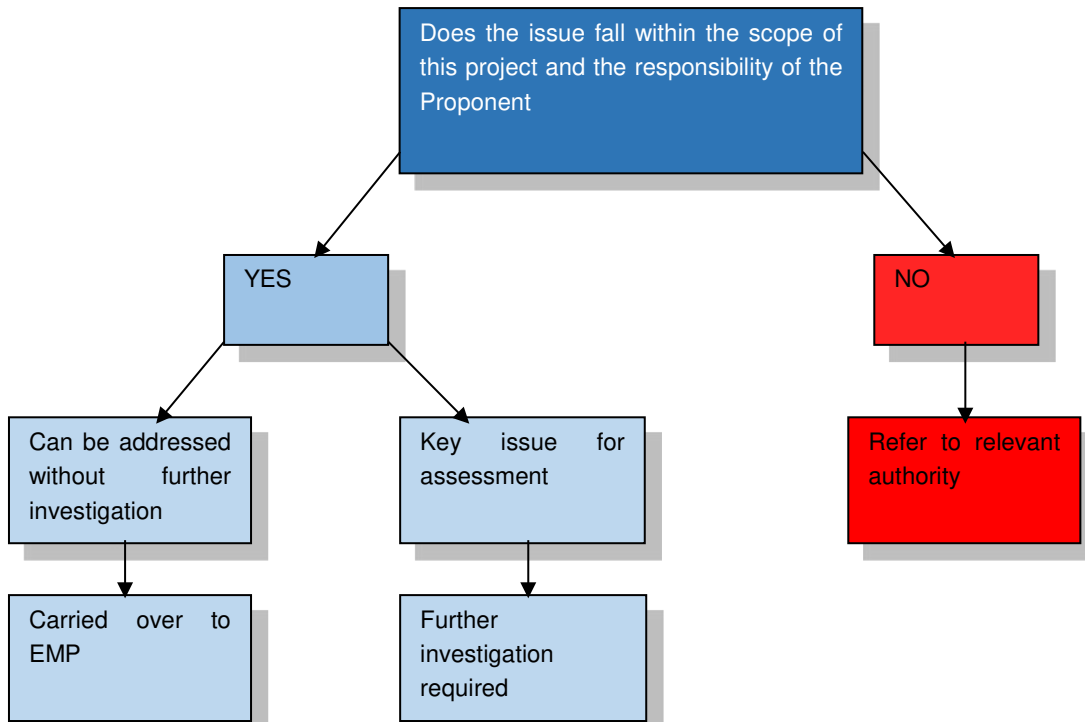
This chapter provides a description and assessment of the key issues of concern and potential impacts associated with the formalisation and proclamation of the two existing informal townships. Mitigation measures relevant to the planning, design, construction, operational and decommissioning phases of the Development as appropriate are recommended. These measures are aimed at avoiding, minimising or rehabilitating negative impacts or enhancing potential benefits. The significance of potential impacts without and with mitigation is also provided.

Given the nature of the Project and that of the receiving environment, the development is expected to have impacts on the immediate and surrounding receiving socio-economic and biophysical environment. An understanding of these impacts together with effective mitigation measures can however minimise such impacts, even avoid impacts in certain instances.

The Environmental Assessment Process consisted of two phases, the first being the screening phase and the second the scoping phase, as explained below.

### **7.1 SCREENING PHASE METHODOLOGY**

Each of the potential impacts identified during public consultation and the scoping assessment was screened according to a set of questions (Figure 7.1), which resulted in highlighting the key impacts requiring further assessment.



**Figure 7.1:** Screening process for determining key impacts

## 7.1.1 POSITIVE IMPACTS

### 7.1.1.1 Socio-Economic

#### *Income Generation & Skills Transfer (Employment)*

Construction makes use of larger numbers of unskilled labour, as well as skilled labour although to a lesser extent, which does not only contribute to income generation and a security of better livelihoods, but contributes to skills transfer as well.

Considering the socio-economic standing of the Region (see section 5.5) and in specific that of Kamanjab, a serious need for employment opportunities and improved living conditions exists, which would contribute to achieve the socio-economic goals set by Vision 2030.

It is important that local people be employed and that the necessary opportunities exist for unskilled labour to undergo on the job training and skills enhancement.

#### *Economic Benefit to the Construction Industry*

The construction of the bulk and internal services, as well as buildings (dwellings and businesses) will have a direct positive implication on the currently struggling construction industry, which is one of the most important employers.

It is crucial that local contractors be appointed and that as many as possible of the locally available construction material be used throughout the Development.

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*Supply in the demand for developable land and enabling land ownership within Kamanjab Village*

The proclamation and formalisation of Rotsvesting Extension 4 and 5 will supply in the need for formal erven with proper municipal services. It will enabling land tenure and acceptable living standards for the residents of these townships, as per the goals of Vision 2030.

## 7.2 SCOPING ASSESSMENT METHODOLOGY

This list of impacts that were subjected to a scoping assessment is presented in Table 7.2 and 7.3, as per the evaluation criteria presented in Table 7.1 below.

The potential impacts identified were evaluated in terms of extent (spatial scale), duration (time scale), intensity (magnitude) and probability. The means of arriving at the different significance ratings is explained in Table 7.1 below.

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 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.

**Table 7.1 - Criteria for Impact Evaluation**

CRITERIA	CATEGORY
<b>Impact</b>	This is a description of the expected impact.
<b>Nature</b>	Describe the type of effect.  <b>Positive</b> – environment overall will benefit from the impact  <b>Negative</b> – environment overall will be adversely affected by the impact  <b>Neutral</b> – environment overall will not be affected
<b>Extent</b>	Describe the scale of the impact.  <b>Site Specific:</b> Expanding only as far as the activity itself ( <i>onsite</i> ) <b>Small:</b> Restricted to the site's immediate environment within 1 km of the site ( <i>limited</i> ) <b>Medium:</b> Within 5 km of the site ( <i>local</i> ) <b>Large:</b> Beyond 5 km of the site ( <i>regional</i> )
<b>Duration</b>	Reviews the lifetime of the impact.  <b>Very short</b> – days, <3 days  <b>Short</b> - days, <1 month)

	<p><b>Medium</b> - months, &lt;1 year</p> <p><b>Long</b> - years, 1 -10 years</p> <p><b>Permanent</b> - &gt;10 years</p>
<b>Intensity</b>	<p>Describe the magnitude (scale/size) of the Impact.</p> <p><b>None</b> (No environmental functions and processes are affected);</p> <p><b>Low</b> (Environmental functions and processes are negligibly affected);</p> <p><b>Medium</b> (Environment continues to function but in a noticeably modified manner);</p> <p><b>High</b> (Environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).</p>
<b>Probability of Occurrence</b>	<p>Considers the likelihood of the Impact <u>actually</u> occurring.</p> <p><b>Improbable:</b> Not at all likely.</p> <p><b>Probable:</b> Distinctive possibility.</p> <p><b>Highly probable:</b> Most likely to happen.</p> <p><b>Definite:</b> Impact will occur regardless of any prevention measures.</p>
<b>Significance (no mitigation)</b>	<p>The impact on each component is determined by a combination of the above criteria.</p> <p><b>No change:</b> A potential concern which was found to have no impact when evaluated.</p> <p><b>None</b> (A concern or potential impact that, upon evaluation, is found to have no significant impact at all)</p> <p><b>Low</b> (Any magnitude, impacts will be localised and temporary. Accordingly, the impact is not expected to require amendment to the project design)</p> <p><b>Moderate</b> (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation)</p> <p><b>High</b> (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have a “no go” implication for the project unless mitigation or re-design is practically achievable).</p>
<b>Mitigation</b>	Description of possible mitigation measures
<b>Significance (with mitigation)</b>	<b>None</b> (A concern or potential impact that, upon evaluation, is found

	<p>to have no significant impact at all)</p> <p><b>Low</b> (Any magnitude, impacts will be localised and temporary. Accordingly, the impact is not expected to require amendment to the project design)</p> <p><b>Moderate</b> (Impacts of moderate magnitude locally to regionally in the short term. Accordingly, the impact is expected to require modification of the project design or alternative mitigation)</p> <p><b>High</b> (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly, the impact could have a “no go” implication for the project unless mitigation or re-design is practically achievable)</p>
<b>Degree of Confidence</b>	<p>State the degree of confidence in predictions based on availability of information and specialist knowledge.</p> <p><b>Low</b> (based on the availability of specialist knowledge and other information)</p> <p><b>Medium</b> (based on the availability of specialist knowledge and other information)</p> <p><b>High</b> (based on the availability of specialist knowledge and other information)</p>

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 Competent Authority.

### 7.3 MITIGATION APPLICATION METHODOLOGY

There is a hierarchy of actions, which can be undertaken to respond to any development or activity, i.e. avoidance, minimisation and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are included in the development. If negative impacts occur then the hierarchy, as a guiding philosophy, recommends 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 actions 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 minimisation:** 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 project;
    - redesigning elements of the project; and
    - implementing mitigation measures to manage the impacts.
  - **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.

## 7.4 POTENTIAL IMPACTS IDENTIFIED AND ASSESSED

For this assessment's purpose, the issues and impacts identified are grouped according to the main project phases – i.e. the construction phase and operational phase. Sections 7.4.1 and Section 7.4.2 give a broad overview of each potential impact expected during the two phases, as well as an assessment outcome with mitigations.

### 7.4.1 POSSIBLE IMPACTS DURING CONSTRUCTION PHASE

The construction activities, which have been considered, include those activities applicable to both the construction of buildings (i.e. houses & businesses) and the construction of bulk services (i.e. roads; potable water; sewer; stormwater; and electricity).

Construction impacts are apart from a few, mostly temporary in nature, but may have a permanent and lasting result if not addressed in time and in an effective manner. Details with regards to the potential impacts expected during the construction phase are briefly discussed below.

Detailed mitigation measures and environmental requirements having direct relevance to the expected construction impacts are presented in the tables below and in the Construction Environmental Management Plan (Appendix E).

Table 7.2 below presents the potential impacts expected to occur during the construction phase of the Development, while Table 7.2.1 to Table 7.2.10 present the assessment and outcome of each of the key impacts, with mitigations.

**Table 7.2 - Key issues and potential impacts expected during the Construction Phase**

IMPACT	CAUSE
Erosion & Sedimentation	Vegetation clearance
	Trenches & excavated areas

IMPACT	CAUSE
Ground and Surface Water Pollution	Waste disposal
	Hazardous material & liquid disposal
Habitat Destruction and Loss of Biodiversity	Vegetation clearance & removal of trees
	Erosion & sedimentation
	Poaching
Visual Aesthetics and Sense of Place	Vegetation clearance
	Poorly planned construction sites
	Insensitive infrastructure design and scale
Socio-Economic	Dust nuisance
	Noise and vibration nuisance
	Traffic safety
	Health, safety and security
Heritage and Archaeological Resources	Removal and/or disturbance
Natural Resources (water & energy)	Unacceptable high levels of consumption
	Wastage

#### 7.4.1.1 Erosion and Sedimentation

Erosion and sedimentation will take place in the event that soils are exposed to the natural elements (i.e. winds and rains) through clearing of vegetation or excavations, which in turn could result in seasonal (rain season) degradation of habitats and visual downgrade. The amount of erosion and sediment transport is directly related to what time of the year the construction activities occur and the duration thereof. If clearing and grading activities take place during the wetter months of the year (November to March), substantially more erosion would result.

The Soil Conservation Act 76 of 1969 requires the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources.

Considering the natural conditions (i.e. soil composition, topography, and vegetation cover) (see sections 5.2.3, 5.2.5 and 5.3.1) and the Township's layout over drainage lines (see section 4.4), minor erosion and sedimentation can be expected but can be effectively managed and mitigated.

**Table 7.2.1 – Erosion and sedimentation significance**

Impact Description	<b>Erosion and sedimentation</b>
Nature of Impact	Negative

Extent	Site specific
Duration	Short Term
Intensity	Medium along medium grade slopes / low within flat areas
Probability	Highly Probable
Significance Pre-mitigation	Low
Mitigations	<p>Apply acceptable engineering standards and design, or Best Management Practices (BMP). BMPs are defined as physical, structural, and/or managerial practices, that when used singly or in combination, prevent or reduce the expected impact/s. Structural BMPs typically include sediment ponds or traps, stabilized construction entrances, filter fences, check dams, and riprap. Managerial BMPs include preserving the natural vegetation, leaving buffer zones, and providing dust control.</p> <p>Plan the timing of construction to avoid clearing and grading during erosive high rainfall months of the year.</p> <p>Avoid unnecessary and excessive vegetation clearance and disturbance of top soil.</p> <p>Contractor should draft a Rehabilitation Plan and re-vegetated exposed areas once construction at the particular area ceased. The Rehabilitation Plan should provide for a phased approach ensuring that no large area is exposed to natural elements (e.g. wind, water).</p> <p>Part 3 – Environmental Specifications of the Construction Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Very Low
Legal Implications	Soil Conservation Act 76 of 1969 (see section 3.2)
Degree of Confidence	High

Given the environment's natural characteristic and scale of future infrastructure to be constructed, the potential occurrence of erosion and resulting sedimentation is rated as **low** before mitigations and **very low** following proper mitigation measures.

#### 7.4.1.2 Ground and Surface Water Pollution

Construction activities are associated with a variety of potential pollution sources (i.e. cement, oils, diesel, chemicals, paints, etc.), either having a direct and immediate impact or indirect and longer-term impact. As a single incident, in order for the downstream ground water to be contaminated, very large quantities of pollutants will have to be released into the environment, of which volumes are not associated with this type of Development (i.e. construction of streets and other infrastructure). Although, however small these potential sources of pollution might be, it still requires special attention (i.e. planning, control and management) to avoid any potential pollution



of the immediate environment and contributing to the cumulative pollution impacts on downstream resources.

The geological, soil and hydrogeological characteristics (see Sections 5.2.3 and 5.2.4) of the Development area and surroundings characterise a sensitive status, which in turn indicate a moderate impact to downstream resources in the event that large quantities of pollutants are released into the natural environment. Prevention of any form of pollution is thus essential in the interest of all downstream resources.

**Table 7.2.2 – Surface and ground water pollution significance**

Impact Description	<b>Groundwater and surface water pollution</b>
Nature	Negative
Extent	Local
Duration	Medium
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Moderate
Mitigations	<p>Draft and implement a Construction Waste Management Plan to be maintained for the duration of the construction phase.</p> <p>Waste should be stored in appropriate containers in an appropriately constructed area protected against exposure to high intensity rainfall.</p> <p>Waste should be frequently disposed of at the approved dump site.</p> <p>Storage of any material or substance that may cause pollution to water sources should be safely handled and stored in accordance with appropriate legislation. Contractor should submit a Method Statement for the purpose of handling and storage of hazardous materials on-site.</p> <p>A Storm Water Management Plan should be drafted to be maintained for the duration of the construction time frame.</p> <p>Ensure proper maintenance of all construction vehicles and equipment, and conduct continues maintenance and check-ups.</p> <p>Draft and implement a Detailed Preparedness and Emergency Plan for all construction related spillages.</p> <p>Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with. Polluted soil and building rubble must be transported away from the site to an approved and appropriately classified waste disposal site. Polluted soil must be remediated where possible.</p>

	<p>Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles.</p> <p>All fuel tanks must be bunded to 120% of the capacity of the tank in order to contain any spillages that might take place.</p> <p>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. These polluted waters should be transported and disposed at a waste site for hazardous materials.</p> <p>Appointing qualified and reputable contractors is essential.</p> <p>Proper training of construction personnel would reduce the possibility of the impact occurring.</p> <p>'Best' practice measures should be applied to minimise the potential discharge of pollutants onto open soil especially near drainage lines.</p> <p>'Part 3 – Environmental Specifications' of the Construction Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Low
Legal Implications	Water Act No. 54 of 1956, as amended /Soil Conservation Act 76 of 1969 / Hazardous Substances Ordinance No. 14 of 1974, as amended / Public Health Act No. 36 of 1919, as amended (see section 3.2)
Degree of Confidence	High

Given the environment's natural characteristics, construction pollution is expected to have a **moderate** impact before mitigation and a **low** impact following proper mitigation measures and continues monitoring. With the proper precautionary measures in place, it is unlikely that groundwater contamination will occur at the Property and therefore the proposed construction phase is not likely to have any detrimental impacts on the groundwater resources of the area.

#### 7.4.1.3 Habitat Destruction and Loss of Biodiversity

Removal of the natural vegetation cover to make way for the roads, other infrastructure and buildings is inevitable, although in the case of the development these reception areas have already been done.

Any further clearance for purpose of infrastructure construction should be done within a properly planned and responsible manner to avoid unnecessary removal of ground cover and especially protected species, as per the Forest Act (No. 12 of 2001, as amended).

Considering that the larger part of the Development has been in existence in an informal manner, habitat destruction and loss of biodiversity, has already taken place to a large extent. Construction of bulk services that might pass through virgin portions of land should consider the receiving environment and adapt accordingly, either through realignment or minimising the expected impact. Outcrops with special fauna and flora should be avoided, although these areas are of such a steep nature in Kamanjab that it does not allow any development. Larger trees should be protected.

**Table 7.2.3 – Habitat destruction and loss of biodiversity significance**

Impact Description	<b>Habitat destruction and loss of biodiversity</b>
Nature	Negative
Extent	Site specific
Duration	Medium
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Low
Mitigations	<p>Conduct a Pre-construction Vegetation Survey to establish protected/endangered species to be marked and incorporated into the Development.</p> <p>Avoid clear felling i.e. removal of all the indigenous trees/shrubs and grasses of the area prior to development. If required to remove indigenous trees introduce a policy of re-establishing (i.e. planting) 5 indigenous tree species for each indigenous species removed.</p> <p>Incorporate the protected species as well as some of the other bigger tree/shrub specimens in the overall final landscaping of the area. The bigger tree/shrubs often serve as habitat to a myriad of indigenous fauna – e.g. loose bark, cavities, etc. Indigenous species also require less maintenance and water than exotic species.</p> <p>Identify and mark trees or other vegetation that should be protected and that should not be removed during construction.</p> <p>Show overall environmental commitment by adapting a minimalistic damage approach.</p> <p>A Rehabilitation Plan as proposed in the EMP should address all aspects of the natural environment on completion of construction</p>

	<p>and prior to operation.</p> <p>Eradicate and remove the invasive alien species, especially <i>Prosopis</i> and <i>Cactus</i> species.</p> <p>Restrict construction vehicle movement to the site and restrict movement into the No-Go areas or beyond the construction site boundaries.</p> <p>No hunting, trapping, setting of snares or any other disturbance of any fauna species.</p> <p>During the planning phase of the construction period, the appointed contractor should identify areas for lay down areas and construction vehicle sites within areas that are already cleared or disturbed.</p> <p>Only prominent gravel tracks should be utilised during the construction phase, to avoid track proliferation. Off-road driving should be strictly prohibited.</p> <p>Permits should be obtained for protected plant species that unavoidably need to be removed.</p> <p>Construction activities should be subject to well-coordinated planning to avoid unnecessary removal of vegetation particularly protected plant species. Unnecessary destruction of habitats within the footprint of the construction site and along the pipeline route alignment should be avoided. Direct involvement of the Environmental Site Manager is a prerequisite in determining the locality of the construction site and final alignment.</p> <p>'Part 3 – Environmental Specifications of the Construction' of the Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Very low
Legal Implications	Forest Act No. 12 of 2001, as amended / Nature Conservation Ordinance No. 4 of 1975, as amended / Soil Conservation Act No. 76 of 1969, as amended (see section 3.2)
Degree of Confidence	High

Given the directly affected environment's natural characteristic (i.e. severely disturbed) and expected scale of destruction (i.e. minor infrastructure construction), the impacts are expected to be **low** before mitigations and **very low** following proper mitigation measures and continuous monitoring.

#### 7.4.1.4 Visual Aesthetics and Sense of Place

Construction activities are known to have a visual impact owed to the nature of the activity, although temporary in lifespan. The significance of this impact is directly linked to the topography and vegetation occurrence within the affected environment, as well as the scale of the construction activities and the distance between the impact and the receptor.

**Table 7.2.4 – Visual aesthetics and sense of place significance**

Impact Description	Visual aesthetics and sense of place
Nature	Neutral
Extent	Local
Duration	Medium
Intensity	Low
Probability	Definite
Significance Pre-mitigation	Low
Mitigations	<p>Keep as much natural vegetation on site as possible to screen construction site and activities.</p> <p>Restrict the amount of structures on site and restrict the height to a maximum of 3 meters, where possible.</p> <p>If required, structures should be painted in natural colours to lessen the visual impact.</p> <p>Keep the construction site tidy and clean of any construction waste, especially over weekends.</p> <p>Limit construction vehicle movement in the area to a minimum and use designated pre-demarcated routes having the least possible impacts on residents.</p> <p>'Part 3 – Environmental Specifications of the Construction' of the Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Very low
Degree of Confidence	High

Given the existence of infrastructure and informal structures within a disturbed urban environment and the expected scale of construction activities, the visual impact during the construction phase is expected to be **low**. By applying the proposed mitigations, the impacts during construction can be reduced to **very low**.

#### 7.4.1.5 Socio-economic Implication

Construction activities are associated with a variety of impacts that has either a direct or indirect implication on the surrounding residents' living conditions and/or socio-economic status, as covered below. Positive Socio-economic benefits are discussed in Section 4.7 and 7.1.1.

### *Dust & Emissions*

The air quality in the area is considered good (see Section 5.2.2), based on the potential impact that current activities in the area are likely to have on air quality.

Dust and emissions are associated with construction activities (i.e. digging; clearing; excavating; transport of materials) of which the severity is directly related to the extent of the Development and the nature of the receiving environment. Given the activities within the immediate surroundings, dust is expected to be more of a nuisance than emissions, as a result of construction activities. The prevailing wind direction and strength may however decrease the impact of dust blown to the outskirts towards the west and south of the village (see Section 5.2.1.3).

**Table 7.2.5 – Dust and emissions significance**

Impact Description	Dust and emissions
Nature	Negative
Extent	Site specific
Duration	Very short
Intensity	Low
Probability	Highly probable
Significance Pre-mitigation	Low
Mitigations	<p>Regular dust suppression, if required, during times of strong winds, should minimise dust impacts mainly with respect to the contractor's staff. Dust suppression by means of wetting should only be done with treated wastewaters.</p> <p>Removal of vegetation should be restricted to the minimum and what is necessary.</p> <p>Construction activities during high winds should be limited to those activities not generating dust.</p> <p>Handling and transport of erodible materials should be avoided under high wind conditions.</p> <p>Where possible, topsoil stockpiles should be located in sheltered areas and covered.</p> <p>Appropriate dust suppression measures should be used when dust generation is unavoidable particularly during prolonged dry periods in summer. Such measures shall also include the use of temporary stabilising measures.</p> <p>No fires should be allowed on-site for any what purpose and construction waste are not allowed to be burned on-site.</p> <p>It is imperative that all machinery and vehicles on site is road</p>

	worthy and do not give rise to excessive smoke or emissions. The contractor's personnel are to be provided with access to dust masks. 'Part 3 – Environmental Specifications' of the Construction Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.
Significance Post-mitigation	Very low
Legal Implications	Atmospheric Pollution Prevention Ordinance No 11 of 1976, as amended / Public Health Act No. 36 of 1919, as amended / Labour Act No. 11 of 2007, as amended (see section 3.2)
Degree of Confidence	Definite

### *Construction Noise & Vibration*

Noises and vibrations are synonymous with the construction phase, as heavy construction vehicles and machinery operates. The scale of the construction activities and type of construction activity, as well as the locality of the surrounding receptors determine the significance to the particular construction activity.

The severity of these impacts is likely to be more significant to those receptors living close by, compared to those further away from a construction site.

The prevailing wind direction and strength may increase the impact-radius of construction noises, but is expected to be minimal, considering the prevailing wind direction (see Section 5.2.1.3).

The predicted noise levels from construction activities are expected to be significantly **low** to the larger surrounding area, but definitely **higher** to the immediate neighbours. For the surrounding properties the impact is expected to be **moderate-low** in significance.

**Table 7.2.6 – Noise and vibration significance**

Impact Description	Noise and vibration
Nature	Negative
Extent	Small
Duration	Temporary
Intensity	Low to the larger surroundings and medium to the direct neighbours
Probability	Highly probable
Significance Pre-mitigation	Low to the larger surroundings and medium to the direct neighbours
Mitigations	Appropriate directional and intensity settings are to be maintained on all hooters and sirens.

	<p>No amplified music should be allowed on Site.</p> <p>Inform immediate neighbours of construction activities to commence and provide for continues communication between the neighbours and Residents Engineer.</p> <p>The Contractor shall not use sound amplification equipment on Site unless in emergency situations.</p> <p>Limit construction times to acceptable daylight hours.</p> <p>Screen construction activities from residential, social and business entities as far as reasonably possible.</p> <p>The World Health Organization (WHO) guideline on maximum noise levels (guidelines for Community Noise, 1999) to prevent hearing impairment can be followed during the construction phase. This limits noise levels to an average of 70 db over a 24 hour period with maximum noise levels not exceeding 110db during the period.</p> <p>All construction vehicles and machinery should be kept in good working condition. If any noise-related complaints are registered the applicable construction vehicles and machinery should be fitted with noise reduction devices.</p> <p>Personnel working in noisy environments must be issued with hearing protectors.</p> <p>'Part 2 – Environmental Specifications' of the Construction Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Low
Legal Implications	Public Health Act No. 36 of 1919, as amended / Labour Act No. 11 of 2007, as amended (see section 3.2)
Degree of Confidence	Definite

### *Traffic & Safety*

Construction activities are associated with an increase in vehicles of different kinds (i.e. workers' busses, delivery vehicles and construction vehicles) to and from the Site, which inevitably increase risk and conflict.

**Table 7.2.7 – Traffic & safety significance**

Impact Description	<b>Traffic &amp; safety</b>
Nature	Negative
Extent	Site specific



Duration	Medium
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Low
Mitigations	<p>Contractor's personnel should adhere to speed limits.</p> <p>Appropriate signs should be in place along the roads being used by construction vehicles notifying road users and residents of the construction activity and roads used by construction vehicles.</p> <p>Drivers of construction vehicles should have valid driver's licenses with ample experience on proper road usage and manners on-site as well as when making use of public roads.</p> <p>Construction vehicles' need to be in a road worthy condition and maintained throughout the construction phase.</p> <p>Make use of predetermined roads and refrain from creating new roads for access purpose.</p> <p>Provide traffic signals and road markings where necessary to ensure safe traffic movement.</p> <p>'Part 3 – Environmental Specifications' of the Construction Environmental Management Plan provides detail specifications and requirements to avoid any potential impacts.</p>
Significance Post-mitigation	Very low
Legal Implications	Public Health Act No. 36 of 1919, as amended / Labour Act No. 11 of 2007, as amended / Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations, as amended (see section 3.2)
Degree of Confidence	Probable

The potential pre-mitigation impact is regarded as **low**, which can be reduced to **very low** through applying proper mitigations.

### *Health, Safety & Security*

Health and safety of both the residents and that of construction staff is essential and should be respected. Construction activities should be done in such a manner as to prevent any potential risk to the residents' safety and/or health. It is thus important that trenches be fenced-off and secured, while hazardous liquids used and stored should be done in a safe manner.

Areas within which construction activities takes place is usually associated with criminal activity, posing a security risk to those residing in the area. It is not to say that these criminal activities are as a result of the construction staff, but is known to happen in the vicinity of construction sites.

Prostitution is also associated with construction activities especially where construction labourers reside in temporary accommodation near or on site/s.

**Table 8.2.8 – Health & safety & security significance**

Impact Description	<b>Health &amp; safety &amp; security</b>
Nature	Negative
Extent	Local
Duration	Medium
Intensity	Medium
Probability	Probable
Significance Pre-mitigation	Moderate
Mitigations	<p>Ensure that all construction personnel are properly trained depending on the nature of their work.</p> <p>Provide for a first aid kit and properly trained person to apply first aid when necessary.</p> <p>A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases.</p> <p>Restrict unauthorised access to the site and implement access control measures.</p> <p>Clearly demarcated the construction site boundaries along with signage of no unauthorised access.</p> <p>Clearly demarcate dangerous areas and no go areas on site.</p> <p>Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures.</p> <p>The contractor must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment including earplugs.</p> <p>All affected land owners should be notified at least one month in advance who the appointed contractor is and provided with details about the proposed construction activities and timeline.</p>
Significance Post-mitigation	Low
Legal Implications	Public Health Act No. 36 of 1919, as amended / Labour Act No. 11 of 2007, as amended (see section 3.2)
Degree of Confidence	High

These potential impacts hold **moderate** significance and can with appropriate mitigations reduce its impact to **low**.

#### 7.4.1.6 Heritage / Archaeological Resources

The Kamanjab Village has no known areas of cultural significance or sites with archaeological resources. No record of any cultural or historical importance or on-site resemblance of any nature was located during previous environmental studies in the village. No known heritage sites or proclaimed national monuments are located within the footprint of the development site or adjacent properties.

**Table 7.2.9 – Heritage / archaeological resources significance**

Impact Description	<b>Heritage / archaeological resources</b>
Nature	Negative
Extent	Site specific
Duration	Permanent
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Low
Mitigations	<p>Caution should be exercised during the construction phase in the event that archaeological/heritage remains are discovered during the excavations.</p> <p>The Environmental Site Manager should receive training by a suitably qualified archaeologist with respect to the identification of archaeological/heritage remains and the procedures to follow in the event that such remains are discovered during construction.</p> <p>Any archaeological materials find should be reported to the Environmental Site Manager and the National Monuments Council, and all on-site activities stopped immediately. Details with regards to the Chance Find Procedure to follow is defined in the EMP.</p>
Significance Post-mitigation	Low
Legal Implications	National Heritage Act (Act 27 of 2004), as amended (see section 3.2)
Degree of Confidence	Medium

The probability of locating any important archaeological heritage remains during the construction phase is likely to be **improbable**.

#### 7.4.1.7 Natural Resources

The construction phase requires both water and energy of which water is the source under pressure, throughout Namibia.

Given that roads will remain gravel roads, the impact on water resources are minimised. Alternative water resources (i.e. treated wastewater) should be used during the construction phase.

**Table 7.2.10 – Natural resources significance**

Impact Description	Natural resources
Nature	Negative
Extent	Regional
Duration	Medium to Long
Intensity	Medium
Probability	Probable
Significance Pre-mitigation	Moderate
Mitigations	There should be no tolerance towards water wastage. Treated wastewater should be obtained and used for the bulk of the construction requirements. Temporary catchment dams should be constructed to capture water if construction takes place during the rainy season.
Significance Post-mitigation	Low
Legal Implications	Water Act No. 54 of 1956, as amended / Public Health Act No. 36 of 1919, as amended (see section 3.2)
Degree of Confidence	Definite

These potential impacts hold **moderate** significance and can with appropriate mitigations reduce its impact to **low**.

#### 7.4.2 POSSIBLE IMPACTS DURING OPERATIONAL PHASE

These impacts are usually more permanent in nature or at least until decommissioning of the Development. Different from the construction related impacts, no Management Plan is provided for the Operational Phase, but rather recommendations are made to existing Policies or Plans (i.e. Local Authority Bylaws) to be applied.

Details with regards to the potential impacts expected during the operation phase are listed in Table 7.3 below. Mitigation measures and environmental requirements having direct relevance to the expected operational phase impacts are presented in Tables 7.3.1 to 7.3.7 below.

**Table 7.3 - Key potential impacts expected during the operational phase**

IMPACT	CAUSE
Erosion & Sedimentation	Vegetation clearance
Ground and Surface Water	Waste disposal

IMPACT	CAUSE
Pollution	Hazardous material and liquids disposal
Habitat Destruction and Loss of Biodiversity	Vegetation clearance
	Erosion & sedimentation
	Poaching
Visual Aesthetics and Sense of Place	Vegetation clearance / altered vegetation
	Architectural design & scale of buildings
	Land use change
Socio-Economic	Municipal rates and taxes
	Noise
	Traffic safety
Natural Resources (water & electricity)	Unacceptable high level of consumption
	Wastage
	No sustainable practises

#### 7.4.2.1 Erosion and Sedimentation

Erosion and sedimentation during the operational phase is highly unlikely due to the topography and drainage of the area (see Section 5.2.5) Stormwater management will be constructed where necessary, which will further reduce the occurrence of erosion and sedimentation.

It might however take place in the event that open areas along steep gradients and higher lying areas are cleared of vegetation, for whatever reason, which would then result in erosion and sedimentation, as well as seasonal (rain season) degradation of habitats and visual downgrade.

The Soil Conservation Act 76 of 1969 requires the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources. Open areas should be kept within a natural state and no vegetation removal should be tolerated.

**Table 7.3.1 – Erosion and sedimentation significance**

Impact Description	<b>Erosion and sedimentation</b>
Nature	Negative
Extent	Site specific
Duration	Medium or Long Term
Intensity	Low
Probability	Improbable

Significance Pre-mitigation	Low
Mitigations	The stormwater culverts and system should be well maintained. The occurrence of erosion should be monitored and mitigated.
Significance Post-mitigation	Very Low
Legal Implications	Soil Conservation Act 76 of 1969 (see section 3.2)
Degree of Confidence	High

Given that storm water management will be applied where necessary as part of the engineering designs and the flat topography, the potential occurrence of erosion and resulting sedimentation is rated as **low** before mitigations and **very low** following proper mitigation measures.

#### 7.4.2.2 Ground and Surface Water Pollution

The geological, soil and hydrogeological characteristics (see Section 5.2.3 and 5.2.4) of the affected environment and surroundings characterise a sensitive status, which in turn indicate a moderate impact to downstream resources in the event that large quantities of pollutants are released into the natural environment. Prevention of any form of pollution is thus essential in the interest of all downstream resources.

Sources of potential pollution include, but are not limited to hazardous liquids (i.e. diesel/petrol/cleaning liquids) stored at homes or business; leakages from wastewater network; pesticides; improper storage of domestic waste and dumping of waste within open areas. Increased run-off created as a result of the Development (i.e. roofs and other hard surfaces) could enhance pollutant transportation, as well as increased distance pollutants can be transported away from its source.

Apart from sewer waters, none of the other long-term activities (i.e. houses & business) is associated with any large volumes of potential hazardous liquids to the extent of having a significant risk factor. The greatest risk factor lies with the sewerage network where leakages go undetected. The focus during the operational phase should thus be on the proper management and maintenance of the waterborne sewerage network (i.e. pipelines; septic tanks and oxidation ponds), but also ensuring proper waste management and a zero waste disposal at the area to be developed.

**Table 7.3.2** – Surface and ground water pollution significance

Impact Description	<b>Groundwater and Surface Water Pollution</b>
Nature	Negative
Extent	Local / Regional
Duration	Short / Medium Term
Intensity	Medium
Probability	Probable
Significance Pre-mitigation	Moderate to High

Mitigations	<p>Draft and implement a Wastewater Management Plan that aims at monitoring the entire wastewater network and checking for any leakages, by the Local Authority. This Plan should include as a minimum the following -</p> <ul style="list-style-type: none"> <li>• Upgrading and maintenance of the oxidation ponds;</li> <li>• Investigation of ALL existing septic tanks and sewer pipelines for leakages and repairs where required; and</li> <li>• Continues monitoring plan.</li> </ul> <p>Continues awareness of harmful practises and keeping of hazardous liquids should be undertaken by the Local Authority.</p> <p>The discharge of pesticides and herbicides in harmful quantities should be prevented. Pesticides and herbicides should not be used during periods of rainfall; and biodegradable pesticides and herbicides with short half-lives of three days or less should be used. It is recommended to rather use local indigenous flora throughout the landscaped areas and minimise any other plants, trees and lawns as part of the landscaping areas to minimise the necessity for any pesticides and herbicides.</p> <p>Ensure that surface water are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.</p>
Significance Post-mitigation	Low
Legal Implications	Water Act No. 54 of 1956, as amended /Soil Conservation Act 76 of 1969 / Hazardous Substances Ordinance No. 14 of 1974, as amended / Public Health Act No. 36 of 1919, as amended (see section 3.2)
Degree of Confidence	Medium

Possible pollution by way of the wastewater network (and others) is initially considered to be **low**, but has proven to increase in risk over the years as the infrastructure and equipment degrade. Should no management, policing and/or monitoring be done (i.e. no mitigations) from the side of the Local Authority, the risk factor can be regarded as **high**, but can be avoided and reduced to an expected **low** impact following proper mitigation measures and continues monitoring.

#### 7.4.2.3 Habitat Destruction and Loss of Biodiversity

The most destructive disturbance to the local habitat takes place during the construction phase, when the land is prepared for the intended dwellings and businesses. The risk of further habitat destruction during the operational phase depends on the mind-set and environmental awareness of the residing community.

The introduction of human activities on a daily basis can place an increased strain on the fauna and flora species if not managed sensitively. Impacts during the operational phase are predominantly associated with the daily operations of humans and poor management practices (e.g. improper waste management, uncontrolled fires, etc.) and irresponsible behaviour (e.g. uncontrolled access to sensitive areas; collecting of plants or animals; killing of snakes, use of general poison, etc.).

The introduction of gardens and in specific non-indigenous plants will result in the greatest change to the habitat and loss of biodiversity, along with pets scarring away reptiles and other smaller fauna. Planting of invasive alien species and the creation of areas where invasive species can establish, could accelerate alien invasions.

Illegal dumping of waste and improper storm water management can also threaten them within these open areas are also a concern and need to be managed and regulated.

**Table 7.3.3 – Habitat destruction and loss of biodiversity significance**

Impact Description	<b>Habitat destruction and loss of biodiversity</b>
Nature	Negative
Extent	Site specific
Duration	Long Term
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Moderate
Mitigations	<p>Incorporate the protected species as well as some of the other bigger tree/shrub specimens in the overall final landscaping of the erf. The bigger tree/shrubs often serve as habitat to a myriad of indigenous fauna – e.g. loose bark, cavities, etc. Indigenous species also require less maintenance and water than exotic species.</p> <p>Show overall environmental commitment by adapting a minimalistic damage approach.</p> <p>Avoid introducing potential invasive alien species – e.g. <i>Lantana</i>, <i>Opuntia</i>, <i>Tecoma</i>, etc. species – in the eventual landscaping (i.e. ornamental plants) as these have the potential of escaping and infesting the local surroundings.</p> <p>Eradicate and remove the invasive alien species, especially the individual <i>Prosopis</i> and <i>Cactus</i> species located throughout the area.</p> <p>No hunting, trapping, setting of snares or any other disturbance of any fauna species within the open areas.</p> <p>Avoid unnecessary and excessive vegetation clearance and disturbance of top soil for purpose of landscaping. With regards to</p>



	<p>landscaping the following should be done –</p> <ul style="list-style-type: none"> <li>• Landscaping should be done using local and indigenous vegetation.</li> <li>• Lawns as part of the landscaping should be limited to the minimum.</li> <li>• No alien species should be used as part of the landscaping.</li> </ul> <p>Residents should be informed and educated not to remove any plants or animals from the open areas.</p>
Significance Post-mitigation	Low
Legal Implications	Forest Act No. 12 of 2001, as amended / Nature Conservation Ordinance No. 4 of 1975, as amended / Soil Conservation Act No. 76 of 1969, as amended (see section 3.2)
Degree of Confidence	Medium

Given the environment's natural characteristic and expected scale of habitat disturbance, the impacts are expected to be **moderate** before mitigations and **low** following proper mitigation measures and continues monitoring.

#### 7.4.2.4 Visual Aesthetics and Sense of Place

The operational phase will have an 'urban' sense of place with the existence of various buildings (i.e. dwellings; business buildings) and infrastructure (i.e. street lights, reservoir, etc.). The lasting visual aesthetics is determined by the architectural design and scale of buildings, emphasized by the receiving environment's topography and vegetation cover.

Considering the existence of buildings and infrastructure, visual and sense of place has been established, which resembles an urban township environment. The surroundings to the south still contains large open areas.

**Table 7.3.4 – Visual aesthetics and sense of place significance**

Impact Description	Visual aesthetics and sense of place
Nature	Negative
Extent	Local
Duration	Permanent
Intensity	Low
Probability	Probable
Significance Pre-mitigation	Low
Mitigations	<p>Keeping as much natural vegetation within the entire Development to enable screening.</p> <p>Landscaping on ground level with indigenous trees and shrubs can soften the visual impact from the larger and immediate</p>

	<p>surroundings. This will increase the sense of place and make the development easier on the eye. Landscaping will further reduce noise impacts, glare and heat.</p> <p>Structures and buildings can be constructed or cladded with natural stone to blend with the colours of the immediate surroundings. Buildings should be painted with natural colours to promote blending with the natural environment and to lessen the visual impact.</p> <p>Care needs to be taken with reflective or bright surfaces so that glare is avoided.</p> <p>Large areas of bright colours are to be avoided although small areas of colourful accent may be used provided that the colours are chosen to compliment the environment. Generally, darker colours and neutral greys are proposed.</p> <p>Roofs are usually most visible and the finishes need to be chosen to reduce the visual impact from elevated positions. Neutral greys are generally most useful in making structures recessive.</p> <p>Light sources must be placed in such a way, or shielded, so as to provide light only to the area that needs to be lit. Light spillage and pollution must be minimised.</p>
Significance Post-mitigation	Low
Degree of Confidence	Medium

Given the scale and nature of the Development adjacent to the other townships of Rotsvesting, the natural vegetation and the topography of the larger site, visual impact and change in sense of place is expected to be **low**. Very little mitigation exists to decrease the impact apart from applying sensible and sensitive architecture (i.e. design, scale, etc.), which might not be possible, given the limiting economic resources.

#### 7.4.2.5 Socio-economic Implication

The operational phase of any type of development is associated with a variety of impacts that has either a direct or indirect implication to the residents and surrounding residents.

##### *Municipal Rates & Taxes*

The Development, which falls within the jurisdictional area of the Kamanjab Village Council, will bring an additional income to the local authority coffers, which is much needed for service delivery throughout the larger part of Kamanjab.

**Table 7.3.5 – Economic benefit towards municipal rates and taxes**

Impact Description	<b>Municipal Rates and Taxes</b>
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Nature	Positive
Extent	Regional
Duration	Long
Intensity	Low to Medium
Probability	Highly probable
Significance Pre-mitigation	Moderate
Significance Post-mitigation	Moderate
Degree of Confidence	High

### *Noise & Disturbance*

Apart from vehicle movement, no other noises of significance are associated with the operational activities.

Urban developments of this scale and nature are not associated with activities generating unhealthy noise levels, such as industrial activities or agricultural activities. The increase in vehicle movement to and from the Development will have a slight increase in traffic noise compared to the status, but is expected to be of low significance.

**Table 7.3.6 – Noise significance**

Impact Description	Noises
Nature	Negative
Extent	Site specific
Duration	Long
Intensity	Low
Probability	Highly probable
Significance Pre-mitigation	Low
Legal Implications	Public Health Act No. 36 of 1919, as amended (see section 3.2)
Mitigations	Consider the existence of traffic along the roads during the design and orientation of dwellings.
Significance Post-mitigation	Very low
Degree of Confidence	High

The predicted noise levels from the Development's operations and that of the nearby traffic onto the Development is considered **very low**.

### *Traffic & Safety*

Operational activities in this respect is associated with vehicle movement of residents' and visitors' to and from the Development.

**Table 7.3.7 – Traffic & safety significance**

Impact Description	Traffic & safety
Nature	Negative
Extent	Local
Duration	Long
Intensity	Low
Probability	Highly probable
Significance Pre-mitigation	Low
Mitigations	Proper road designs (soft bends, circles, etc.) should be incorporated to limit speeding and maintained for the duration of the lifetime of the development.
Significance Post-mitigation	Very Low
Legal Implications	Public Health Act No. 36 of 1919, as amended / Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations, as amended (See section 3.2)
Degree of Confidence	High

The potential pre-mitigation impact is regarded as **low**, which can be reduced to **very low** through applying proper mitigations.

### *Natural Resources (Demand vs Supply)*

#### **Water Demand**

From the Scoping Assessment it is clear that water supply is limited under natural conditions (See Section 5.2.1.1, 5.2.4 and 5.4.3.2) The limitation has, however, been overcome with the development of the Kamanjab Dam and its boreholes, the Kamanjab Airport well field and Kalkrand well field. These extensions make provision for the increased water demand of the new extensions to Kamanjab.

Wastages through leaks and undetected wastages, should be addressed from the side of the Village Council.

To alleviate pressure on the scarce water resources, it is recommended that sustainable practices and principles be applied during operational phase, i.e. -

- Recycling and reuse of treated wastewater for purpose of flushing of toilets and gardening, which can bring a saving of 35% of the daily potable water consumption;

- 
- Harvesting of rainwater for purpose of household consumption;
  - Restricting gardens to indigenous plants and limited in size; and
  - Water wise technologies with the household.

### **Electricity Demand**

From the side of the Kamanjab Village Council and that of CENORED, sufficient electricity is available to supply in the demand of the new Townships.

## **7.5 DECOMMISSIONING AND CLOSURE**

Developments require decommissioning and closure at a certain point within their lifetime. Township developments, however, are very seldom decommissioned and/or closed as a functioning entity, although some aspects require upgrading (i.e. decommissioning and replacement).

In such an event, the activities are 100% similar to that of the construction phase and is accordingly treated and managed in accordance with the Environmental Construction Management Plan (Appendix E).

## **7.6 CUMULATIVE IMPACTS**

As indicated in Section 7.1. to 7.4, the introduction of any development can be expected to have both positive and negative impacts on the immediate and surrounding receiving environment (natural and social) during either the construction-, operational- and/or decommissioning phase, of which the significance is determined by the nature of the particular activity/ies and the sensitivity of the particular receiving environment.

Some of these impacts will result in having a cumulative impact along with other already existing activities. Cumulative impacts are defined as “those that result from the successive, incremental, and/or combined effects of an action or activity when added to other existing, planned, and/or reasonably anticipated future ones” (*International Finance Corporation, 2012*).

Although cumulative impacts cannot be entirely avoided, they ought to be significantly reduced by means of sustainable practises and thorough implementation of all recommended mitigation measures and implementation of this Scoping Assessment Report and the Construction Environmental Management Plan. Continues monitoring of the effectiveness of mitigations is essential in the long-term, sustainable existence and should be applied to all aspects of the Development.

Potential impacts associated with the Rotsvesting Extension 4 and 5 (Section 7 above) which is expected to have a contributing factor to existing impacts (i.e. cumulative impact), are -

- *Ground and Surface Water Pollution (e.g. wastewater; domestic waste).*
- *Habitat Destruction and Loss of Biodiversity*

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- *Demand for natural resources (e.g. water & electricity).*
  - *Visual Aesthetics and Sense of Place / Land Use Change*
  - *Socio-economic Implication*
    - *Income Generation & Skills Transfer (Employment)*
    - *Municipal Rates & Taxes*
    - *Economic Benefit to the Construction Industry*
    - *Traffic & Safety*
  - *Load on infrastructure (e.g. water network; road infrastructure; waste dumpsite).*

Considering the medium- to low density nature and sustainable practises proposed for implementation at the Development, the pre-operational cumulative impact is considered to be **low**. It is however important that continues assessment be done as data become available over time, and that the necessary adjustments be made as and when required.

Assessing the full extent of cumulative impacts is not accurately possible at the scale of a single environmental assessment and should include the larger surrounding area, which should consider all other contributing activities and the sensitivity of the larger surrounding receiving environment.

## 7.7 NO-GO OPTION

The scenario with or without the Development can be summarised as follows:

- Socio-economic perspective:
  - With the Development, various socio-economic benefits can be expected, which would directly and indirectly contribute to improved socio-economic conditions.
  - Without the proposed development, none of the socio-economic benefits would be applicable and the particular portion of land will remain to have very little or no economic benefit.
- Ecological perspective:
  - With the Development, an increase in ecological degradation can be expected during the construction phase, as natural habitat will make way for buildings and above ground infrastructure.
  - Without the Development, ecological degradation will be avoided, but might further deteriorate due to littering, wood harvesting, etc.
- Resource demand perspective:
  - With the Development, an increasing load will be placed on natural resources.
  - Without the Development, no additional load will be placed on the natural resource.

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## 8 CONCLUSIONS & RECOMMENDATIONS

### 8.1 CONCLUSIONS

Given the nature of the Development and associated activities during both the construction and operational phases, evaluated against the sensitivity of the receiving environment, it is inevitable that the Development would have an impact on its receiving socio-economic and biophysical environment, some of greater potential significance and others of less.

During the construction phase, these would include impacts associated with vegetation clearance (e.g. loss of biodiversity, dust generation, surface runoff, and erosion), construction noises, surface and groundwater pollution, and increased traffic movement (e.g. safety and increased load on existing road network). Mitigation measures have been provided capable of controlling the extent, intensity and frequency of most of these impacts, while the impact on habitat destruction due to vegetation clearance is not able to be mitigated. A direct positive impact of the proposed development is the creation of employment during the construction phase.

Impacts expected during the operational phase are potential pollution (i.e. untreated sewage or wastewater leakages), generation of domestic waste and increased demand on infrastructure and resources. Mitigation measures have been provided that can control the extent, intensity and frequency of these impacts not to have any substantial negative results.

The Development is also subject to certain approval, permits and licences, as reflected under Section 3.4, to which the Development must adhere to.

Based on the baseline information, as presented in this Report, this Scoping Assessment Study, after following the above evaluation, concludes that, there is currently no evidence suggesting that any of the potential impacts identified are of such significance that it cannot be mitigated and that the Rotsvesting Extension 4 and 5 Formalisation, as presented in this Report, cannot be allowed to continue. It is however required that the recommendations as presented below be satisfied with approval from the Environmental Commissioner before the Formalisation can commence.

### 8.2 RECOMMENDATIONS

It is therefore recommended that an Environmental Clearance Certificate be issued for the listed activities forming part of the Rotsvesting Extension 4 and 5 Development, subject to the following recommendations:

- All required permits, licenses and approvals (see section 3.4) for the Development be obtained before construction commences.
- All mitigations listed in Tables 7.2.1 to 7.2.10, and Tables 7.3.1 to 7.3.7, and the Construction Environmental Management Plan (Appendix E) be implemented prior and during construction.
- Pollutants of different sorts should be managed and treated in such a manner not to cause any pollution of the immediate and surrounding receiving environments. The necessary

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mitigations to achieve a zero pollution factor have been proposed within this Scoping Report and the Construction Environmental Management Plan.

- An Environmental Control Officer should be appointed during the construction phase of the Development to make sure all the requirements within the Scoping Report and Construction Environmental Management Plan (Appendix E) are adhered to.
- In the event that road construction material is sourced from nearby quarries it is required that the necessary approval (i.e. environmental clearance certificate) either exists or be obtained by the appointed Contractor.
- It is recommended that alternative and renewable sources of energy be explored and introduced into the Development to reduce dependency on natural resources. Recycling and reuse of treated wastewater or rainwater should be implemented.
- Continued public participation should form part of the construction phase.
- Before construction commences it is recommended to conduct an ecological survey to ensure that all protected species be marked as no-go areas.
- Continued on-site monitoring and evaluation be conducted during the construction and operational phases to be authorised by the DEA and Kamanjab Village Council.
- That an Environmental Audit Report be compiled once the construction phase is completed and submitted with both the Directorate of Environmental Affairs (MET).

### **8.3 ENVIRONMENTAL STATEMENT**

Based on the information presented in this Scoping Report, the Environmental Assessment Practitioner are of the opinion that the immediate and larger environment will not be significantly impacted should the above recommendations as proposed in this Report be implemented and monitored, and responsible environmental practises be applied by the Proponent, contractors and sub-consultants.

Urban Green cc, the independent Environmental Assessment Practitioner, recommends to the relevant authorities that the application for Rotsvesting Extension 4 and 5 Development be supported on condition that the above recommendations (section 8.2) be met and adhered too, and that continues monitoring be conducted as per the Environmental Management Act (Act No. 7 of 2007), it's EIA Regulations and this Scoping Report. It is important that proof of monitoring be submitted with the office of the Environmental Commissioner for review of Environmental Clearance renewal after 3 years.



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# **APPENDIX A**

## **APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE**

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# APPENDIX B

## CV OF EAP

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## **APPENDIX C**

### **MAP OF ELECTRICITY NETWORK IN KAMANJAB VILLAGE**

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# **APPENDIX D**

## **PUBLIC PARTICIPATION**

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# **APPENDIX E**

## **CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN**