



**URBAN
DYNAMICS**
town and regional planners

AUGUST 2023
REPORT NUMBER: APP – 001037

ENVIRONMENTAL SCOPING ASSESSMENT

**FOR THE PROPOSED ESTABLISHMENT OF TWO TOWNSHIPS TO BE KNOWN AS
HAMAKARI PROPER AND EXTENSION 1 AT OKAKARARA, IN THE OTJOZONDJUPA
REGION**



PROPONENT:

OKAKARARA TOWN COUNCIL
P/BAG 2104
OKAKARARA
NAMIBIA

SUBMISSION:

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



CONSULTANT:

URBAN DYNAMICS AFRICA
P O Box 20837
WINDHOEK
NAMIBIA

REFERENCE: 1243
ENQUIRIES: COLLIN SHAPAKA
HEIDRI BINDEMANN-NEL
JOHANN OPPERMAN

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

DEVELOPMENT ROLE PLAYERS:

OKAKARARA TOWN COUNCIL
P/BAG 2104
OKAKARARA
NAMIBIA



DEVELOPMENT WORKSHOP NAMIBIA
P O Box 40723
AUSSPANPLATZ
WINDHOEK
NAMIBIA



PLANNING AND THE SCOPING REPORT FOR THE ESTABLISHMENT OF TWO TOWNSHIPS AT OKAKARARA PREPARED BY

URBAN DYNAMICS AFRICA
P O Box 20837
WINDHOEK
NAMIBIA



GENERAL LOCATION DESCRIPTION OF THE DEVELOPMENT AREA:

DESCRIPTOR:	LOCATION SPECIFICS:
NATURE OF ACTIVITIES:	Construction of public roads and infrastructure through township establishments.
REGION:	Otjozondjupa Region
LOCAL AUTHORITY:	Okakarara Town Council
FALL WITHIN:	Within the Remainder of Farm Okakarara Townlands No. 517
NEAREST TOWNS / CITY:	Okakarara
SIZE OF PTN. 17	235 231 sqm / 23.5 ha.
SIZE OF PTN. 18	167 519 sqm / 16.7 ha
LAND USE:	Undetermined
STRUCTURES:	No Structures
HISTORICAL RESOURCES:	No Historical Resources
CEMETERY:	No Cemetery
FLOODLINES:	No Floodlines
ENVIRONMENTAL SIGNIFICANT ASPECTS:	➤ Potential Removal of Protected Trees
LATITUDE:	-20°60'83.48"S,
LONGITUDE:	17°45'32.29"E.
RELEVANT LISTED ACTIVITIES:	<p>The Environmental Management Act (Act 7 of 2007),</p> <p>Section 10: Infrastructure:</p> <p>10.1. The construction of-</p> <p style="padding-left: 40px;">(b) public roads;</p> <p>10.2. Route determination of roads and design of associate physical infrastructure where-</p> <p style="padding-left: 40px;">(a) public roads.</p>

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ABBREVIATION:	DESCRIPTION:
am	ANTE MERIDIEM / BEFORE MIDDAY
Av	AVENUE
BID	BACKGROUND INFORMATION DOCUMENT
CSIR	COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH
ER	EMPLOYERS REPRESENTATIVE
EA	ENVIRONMENTAL ASSESSMENT
EC	ENVIRONMENTAL COMMISSIONER
ECO	ENVIRONMENTAL CONTROL OFFICER
EMP	ENVIRONMENTAL MANAGEMENT PLAN
Etc.	ET CETERA / OTHER SIMILAR THINGS
e.g.	EXEMPLI GRATIA
HIV	HUMAN IMMUNODEFICIENCY VIRUS
i.e.	ID EST. / IN OTHER WORDS
I&APs	INTERESTED AND AFFECTED PARTIES
NBD	THE NAMIBIA BIODIVERSITY DATABASE
NHC	NAMIBIAN HEALTH CARE
pm	POST MERIDIEM / AFTER MIDDAY
SME	SMALL-AND-MEDIUM-SIZED ENTERPRISE
TRRP	TREE REMOVAL AND REPLACEMENT PLAN
TB	TUBERCULOSIS
URPB	URBAN AND REGIONAL PLANNING BOARD
WMP	WASTE MANAGEMENT PLAN
UNIT SYMBOL:	UNIT DESCRIPTION:
0^c	DEGREES CELSIUS
E	EAST
ha	HECTARES
Km	KILOMETRE
m	METER
mm	MILLIMETRE
S	SOUTH
m²	SQUARE METERS
%	PERCENTAGE

The agricultural sector, with its industries, drives the town's economy. However, the demand for employment exceeds the provision thereof, depending on the type of employment sought. This increases the town's unemployment rate and its ultra-low-income residents. This results in informal settlements being created without formal services.

When townships are planned, not enough consideration is given to the ultra-low-income residents of the town. For this reason, DWN intends to provide an opportunity for ultra-low-income residents to obtain security of tenure by providing an adequate supply of residential properties and installing service infrastructure.

As a result, DWN appointed Urban Dynamics Africa to plan and obtain Environmental Clearance to establish two new townships on Portions 17 and 18 of the Remainder of the Farm Okakarara No 517.

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

3 PURPOSE OF THE REPORT

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

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

4 NATURE OF THE ACTIVITY

The purpose of the application is to obtain approval from the Ministry of Environment, Forestry and Tourism in terms of The Environmental Management Act (Act 7 of 2007),

SECTION 10: INFRASTRUCTURE

10.1 The construction of-

(b) public roads;

10.2 Route determination of roads and design of associate physical infrastructure where-

(a) public road;

This report documents the baseline information necessary to enable the EC to screen this project and issue an Environmental Clearance Certificate in **Section 33 of the Environmental Management Act (Act 7 of 2007)**. It deals with the nature of the project, identifies the potential impacts that may be expected and the mitigation measures that will be implemented to deal with them.

5 LEGISLATION

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

THEME	LEGISLATION	PROVISION	PROJECT IMPLICATIONS
	The Constitution of the Republic of Namibia First Amendment Act 34 of 1998	<ul style="list-style-type: none"> ❖ Article 16 (1) guarantees all persons the right to acquire, own and dispose of property as an individual or in association with others. ❖ Article 95 (i) The state shall actively promote and maintain the welfare of the people by adopting, inter-alia, policies aimed at managing the ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all. 	<p>The project makes provision for freehold title ownership.</p> <p>The project should protect the ecological integrity of the area's ecosystems and social environment.</p>
Environmental	Environmental Management Act 7 of 2007	<ul style="list-style-type: none"> ❖ Section 27 requires that projects with significant environmental impacts are subject to an environmental assessment process. ❖ Section 2(b-c)) requires adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project. ❖ Section 10(1), construction of (b) public roads and Section 10.2 route determination of roads and design of associate physical infrastructure (a) public road whereby the Minister of Environment, Forestry and Tourism or in a manner prescribed by the Minister. ❖ - Details principles which are to guide all EIAs 	<p>This Act and its regulations should inform and guide this EIA process to ensure that Environmental Clearance is obtained.</p>
	EIA Regulations GN	<ul style="list-style-type: none"> ❖ Section 21 details the requirement for public consultation within a given environmental 	

	57/2007 (GG 3812)	<p>assessment process.</p> <ul style="list-style-type: none"> ❖ Prescribes the procedures to be followed for authorisation of the project (i.e. Environmental clearance certificate). 	
Forestry	Forestry Act 12 of 2001	<ul style="list-style-type: none"> ❖ Section 22(1) states that tree species and any vegetation within 100m of a Watercourse may not be removed without a permit. ❖ Provision for the protection of various plant species. 	<p>Plant species protected under Annexure A of the Regulations should be protected through planning the layout and construction of services.</p> <p>A Tree Management Plan should be compiled on the site to identify protected species before construction comments.</p> <p>Permits should be obtained from the Ministry of Environment, Forestry, and Tourism (Department of Forestry) to remove any protected species that are unable to be protected.</p>
	Forest Regulations GN 170/ 2015 (GG 5801)	<ul style="list-style-type: none"> ❖ Section 13.2 states that no protected species should be removed unless special permission is granted. The plant or species declared protected species are listed in Annexure A of the Regulations. 	
Water	Water Act No. 54 of 1956	<ul style="list-style-type: none"> ❖ Section 23(1) deals with the prohibition of pollution of underground and surface water bodies. 	<p>Necessary steps should be in place to prevent the pollution of water resources during the construction phase of the project.</p>

Health and Safety	Labour Act 11 of 2007	<ul style="list-style-type: none"> ❖ Chapter 2 details the fundamental rights and protections of employees ❖ Chapter 3 deals with the basic conditions of employment. 	Employment opportunities presented by the development and compliance with labour law are essential.
	Public and Environmental Health Act of 2015 (GG 5740)	<ul style="list-style-type: none"> ❖ This Act provides a framework for Namibia's structured, uniform public and environmental health system. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. 	Development contractors must comply with these legal requirements of the Act. by preventing activities that can impact the health and safety of the public and employees.
Atmospheric Pollution	Atmospheric Pollution Prevention Ordinance No 45 of 1965	<ul style="list-style-type: none"> ❖ Part II - control of noxious or offensive gases, ❖ Part III - atmospheric pollution by smoke, ❖ Part IV - dust control, and ❖ Part V - air pollution by fumes emitted by vehicles. 	The development should consider the provisions outlined in the Act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed).
Archaeology	National Heritage Act 27 of 2004	<ul style="list-style-type: none"> ❖ Section 48(1) states that " A person may apply to the (Heritage) Council for a permit to carry out works or activities concerning a protected place protected object" 	When archaeological material (e.g., graves) is discovered, the National Heritage Council should be informed immediately.
	Burial Place Ordinance 27 of 1966	<ul style="list-style-type: none"> ❖ The Ordinance prohibits the desecration or disturbance of graves and regulates matters relating to the removal or disposal of dead bodies. 	The Ordinance regulates the exhumation of graves.

Soil	Soil Conservation Act 76 of 1969	<ul style="list-style-type: none"> ❖ The Act regulates combating and preventing soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources. 	Measures should be in place to ensure that soil erosion and pollution are avoided during the construction and operational phases.
Land Use	The Urban and Regional Planning Act 7 of 2018	<ul style="list-style-type: none"> ❖ The Act regulates the establishment of townships, amendment of layout, subdivisions and consolidation, and land rezoning. 	The proposed township and layout should be approved by the Ministry of Urban and Rural Development in accordance with the Act.
	Okakarara Zoning Scheme	<ul style="list-style-type: none"> ❖ The Okakarara Zoning Scheme provides for various land use and activities allowed within the Okakarara Town Council’s jurisdiction. 	The development should be in accordance with the Okakarara Zoning Scheme.
Services and Infrastructure	Road Ordinance 17 of 1979	<ul style="list-style-type: none"> ❖ Section 3(1) the width of proclaimed roads and roads receive boundaries. ❖ Section 27(1) the control of traffic during construction activities on the trunk and main roads. ❖ Section 37(1) infringement and obstructions on and interference with proclaimed roads ❖ Section 38 distance from proclaimed roads at which fences are erected. 	The proponent should ensure that the construction of public roads and infrastructure through township development and the operational phase do not affect major nearby roads.

6 METHODOLOGY

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

6.1 SITE INFORMATION AND TOPOGRAPHY

Urban Dynamics undertook site visits in 2021 to identify the existing structures, infrastructure, topography, land uses, and how the settlement currently functions.

6.2 NATURAL RECEIVING ENVIRONMENT

The Urban Dynamics team conducted an environmental screening for the affected area in August 2022. The team used orthophoto analysis, a site visit, literature surveys and extensive regional experience.

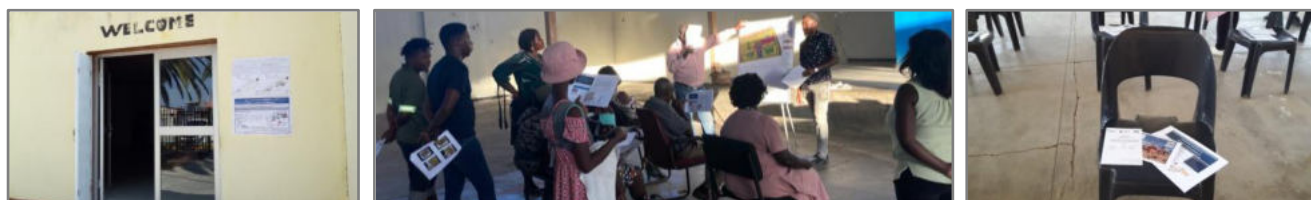
Data sources used include:

- Atlas of Namibia (Atlas of Namibia Team, 2022);
- Atlas of Namibia (Mendelsohn et. al, 2002);
- Otjozondjupa Integrated Land Use Plan (Urban Dynamics, 2016); and
- The Tree Atlas of Namibia (Curtis & Mannheimer, 2005).

6.3 PUBLIC CONSULTATION

Urban Dynamics launched a public consultation campaign to ensure that any person interested in the project will have an opportunity to register as a stakeholder. Newspaper notices were placed in two separate newspapers simultaneously for two successive weeks. The advertisements which were placed are attached as **Appendix "C.1"**. Representatives of Urban Dynamics, the Okakarara Town Council, and the Development Workshop of Namibia (DWN) held a community meeting on March 20 2023, at Okakarara.

Figure 2: Public Consultation



7 DESCRIPTION OF THE SITE

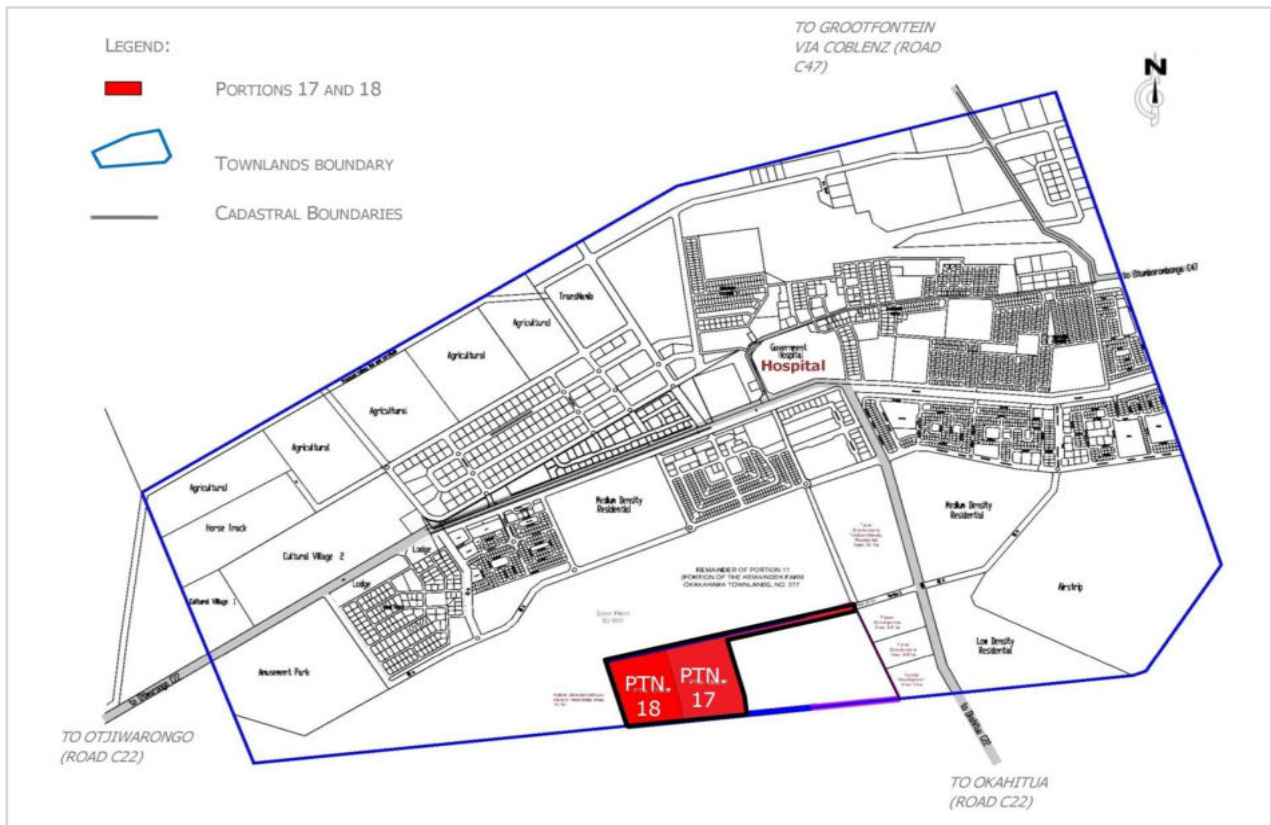
This section provides a description of the proposed project site relative to the surrounding urban areas, existing use and settlement, services and other infrastructure, topography, and other site features.

7.1 LOCATION OF THE SITES

The proposed development is located on Portions 17 and 18 of the Remainder of Farm Okakarara Townlands No. 517. The project falls within the Otjozondjupa Region under Registration Division D.

The portion is south of Okakarara Proper and west of the C22 to Okahitua, at - 20°60'83.48"S, 17°45'32.29"E. A locality plan is attached as **Appendix "B"**.

Figure 3: Locality of the Project Area



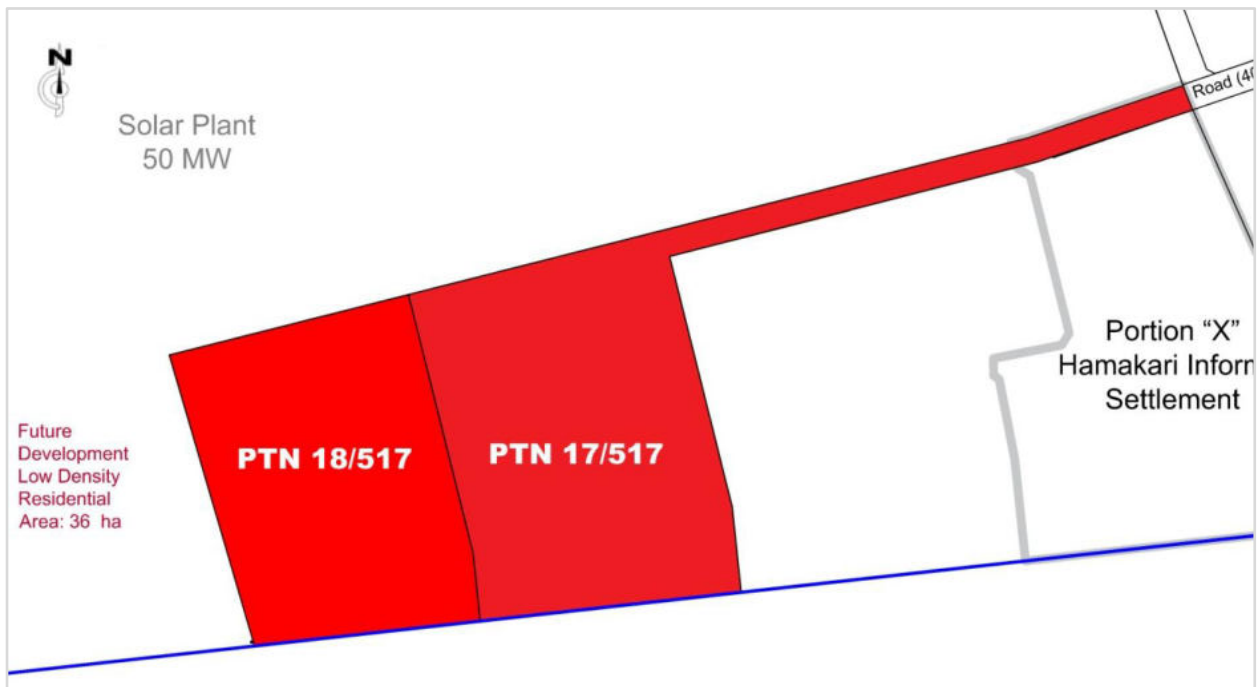
7.2 OWNERSHIP, SIZE AND SHAPE OF THE PORTIONS

The Okakarara Town Council is the registered owner of the portions. The proposed development portion zoning is “Undetermined”. The project site measures approximately 40.2 ha in extent. **Figure 4** illustrates the shape of the portions, and **Table 1** provides the portion’s size and current zoning.

Table 1: Portions Size

Portion Name	Portion size (ha)	Zoning
Portion 17	23.5	Undetermined
Portion 18	16.7	Undetermined
Total	40.2	Undetermined

Figure 4: The Portions Shape



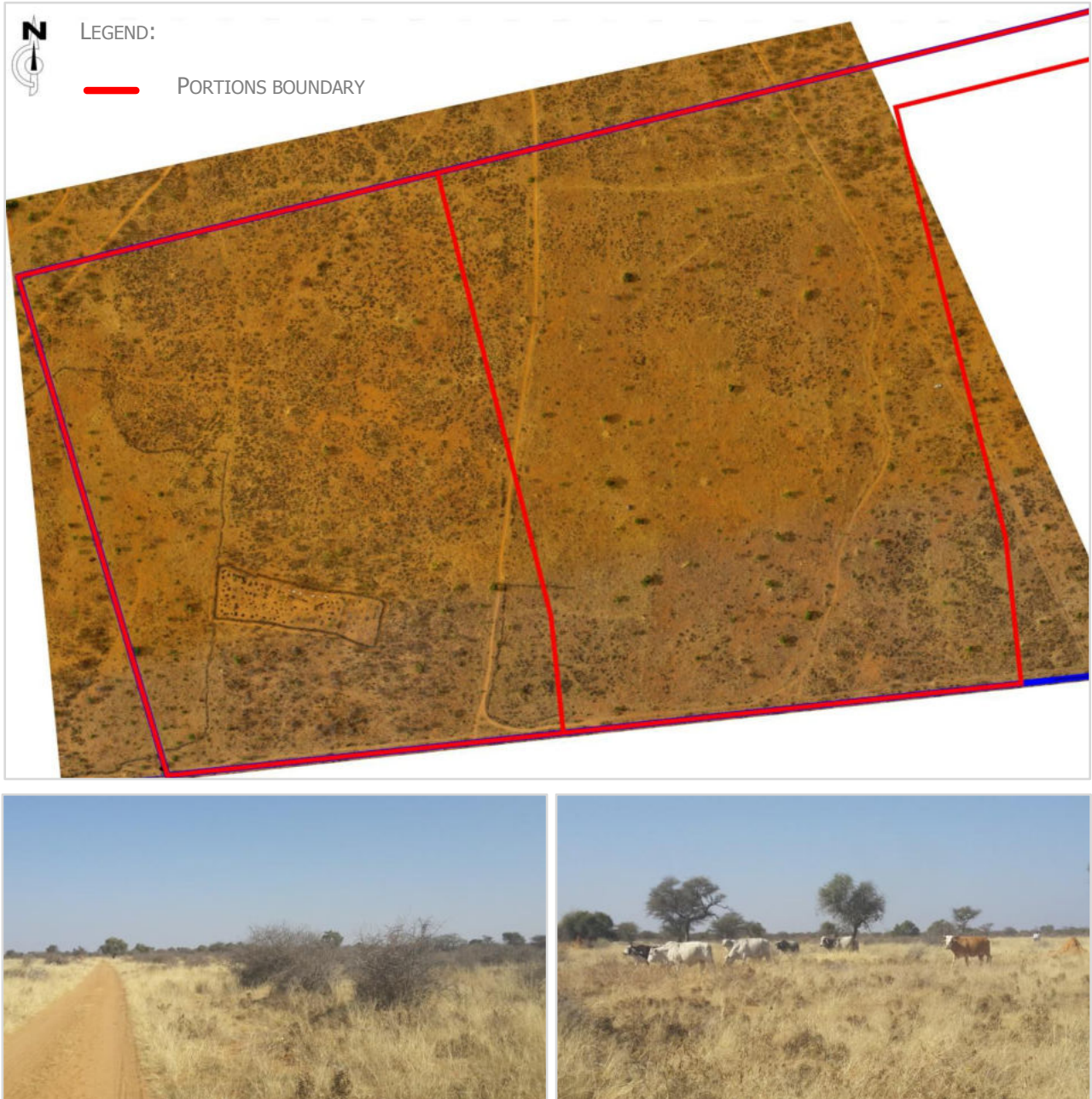
LEGEND:

- PORTIONS 17 AND 18
- TOWNLANDS BOUNDARY

7.3 LAND USE ACTIVITIES

The sites are currently vacant and have no infrastructure. Road tracks run through the site, and open areas are used for animal grazing.

Figure 5: Current Land Use



7.4 UTILITY SERVICES AND ACCESS

7.4.1 Water Connection:

NamWater supplies bulk water to the Okakarara town council’s bulk water network. The development site is to be connected with the town’s water-reticulated network, which supplies water to formal residents and businesses.

7.4.2 Electrical Supply:

The development site is to be supplied from Okakarara’s reticulated network through the nearby power network.

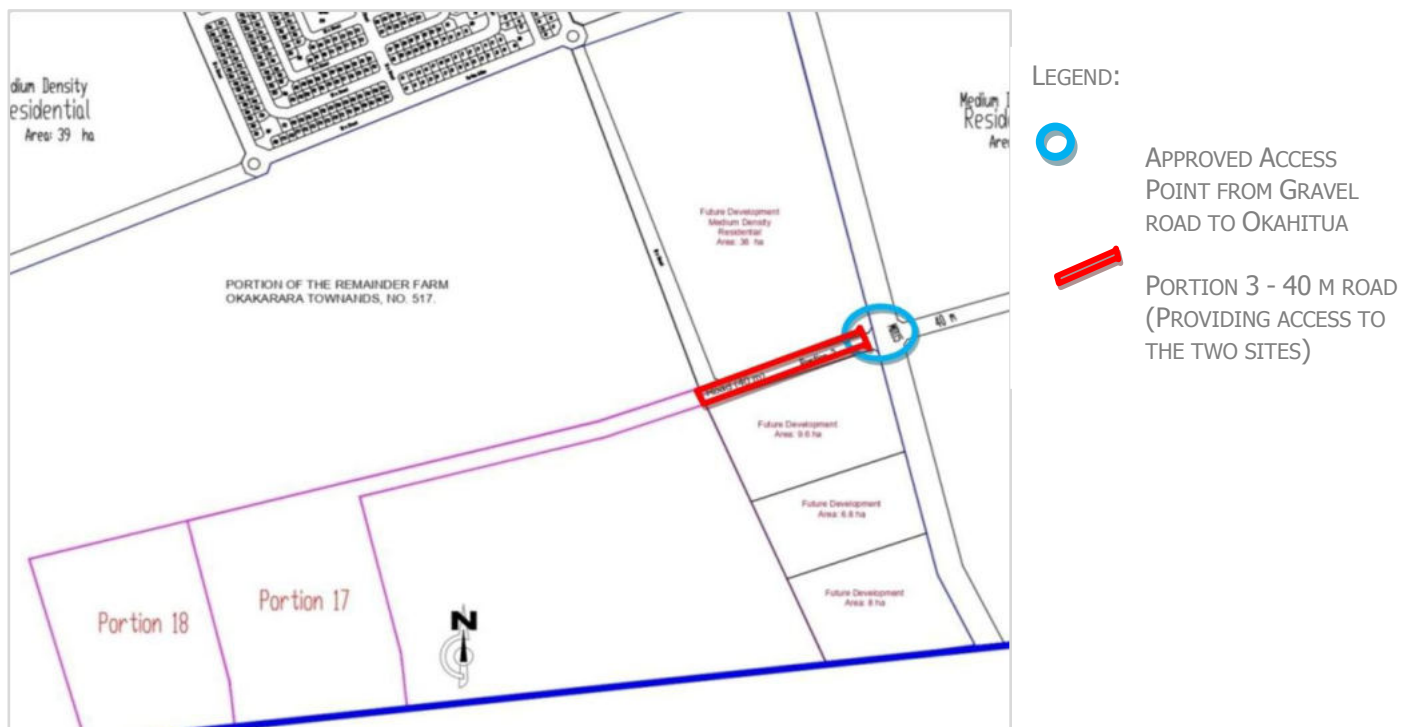
7.4.3 Sewerage:

A sewerage reticulation network and pump station serve the formal Okakarara. The informal settlement areas make use of septic tanks and pit latrines.

7.4.4 Road Access:

The project sites obtain access from District Road 22 C via an existing access point on Portion 3 of the Remainder of Farm Okakarara Townlands No.517. **Figure 6** indicates the approved access via Portion 3.

Figure 6: Approved Access to the District Road 22 C



7.4.5 **Communication:**

The town has accessibility to selected services, including television, radio, newspaper, telephone, and cell phone.

7.5 CULTURAL RESOURCES

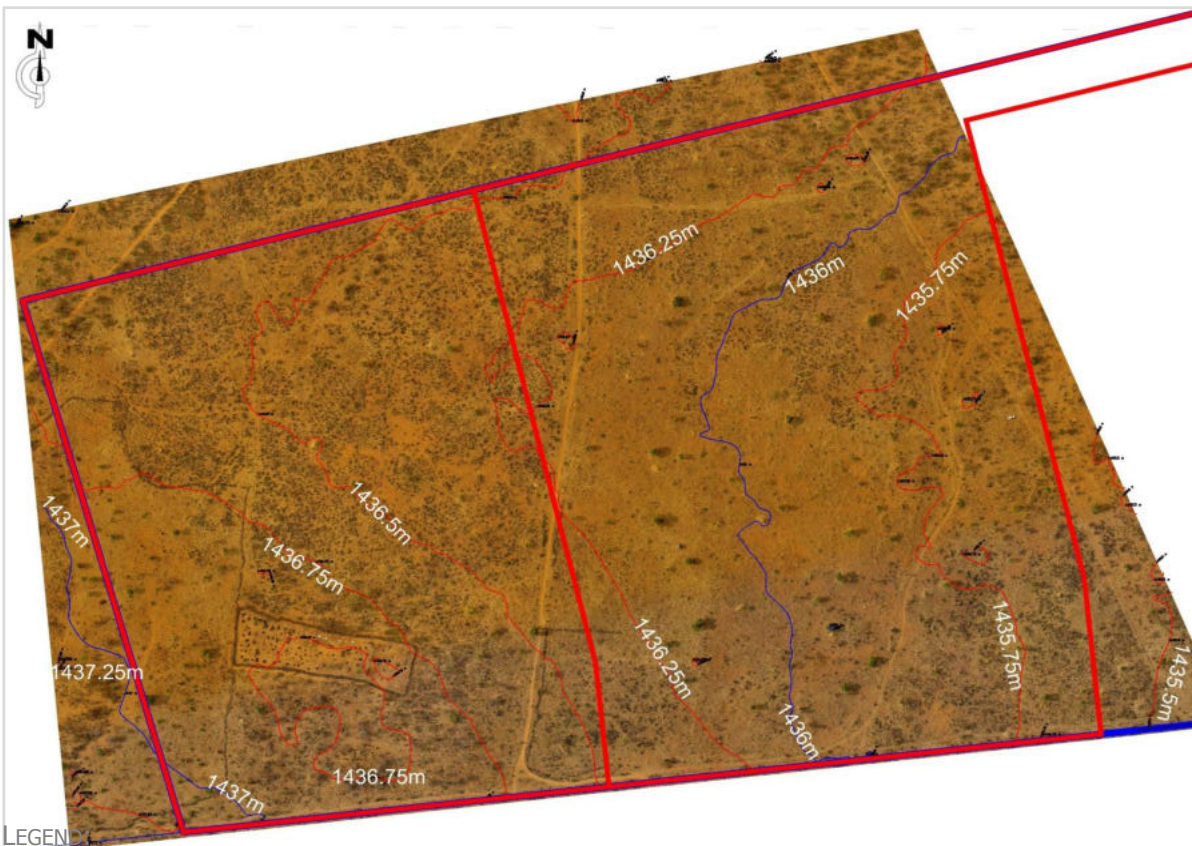
No items of historical value were found or could be identified within the development site's boundaries.

7.6 TOPOGRAPHY AND ENVIRONMENTAL CHARACTERISTICS

7.6.1 **Topography:**

The site's topography is characterised by a flat downward slope from northwest to southeast, with the highest point being 1437 m above sea level and the lowest is 1436.5m. The figure below shows the contours and slope of the site

Figure 7: Contour Map

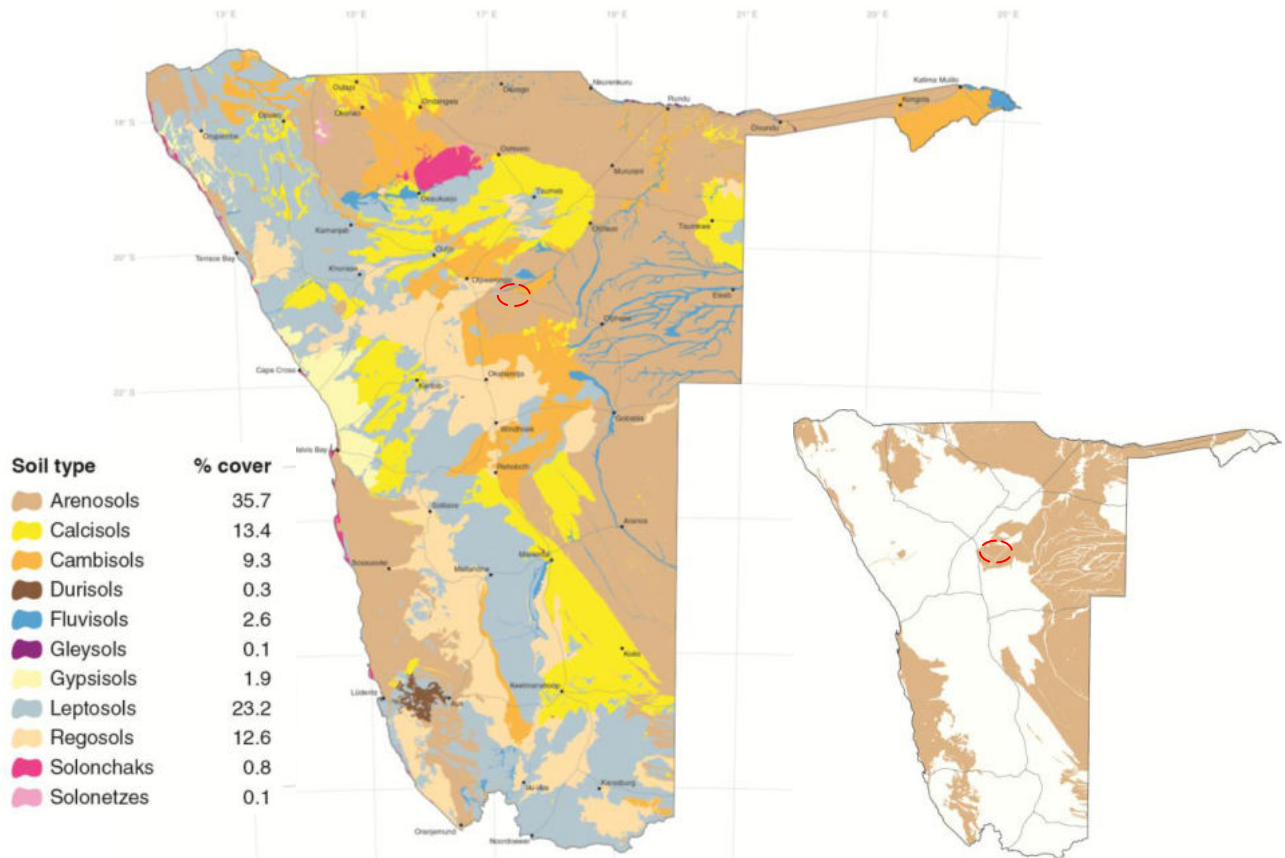


CONTOURS
PORTIONS BOUNDARY

7.6.2 **Soil Conditions:**

As indicated in **Figure 8**, Namibia has eleven (11) soil types, of which 35.7 % of Namibia is covered by Arenosole soil. According to the Namibian Atlas (2022), Arenosols are predominantly deep windblown sands with a sandy texture and loose, porous consistency, meaning that Arenosols cannot store water and nutrients.

Figure 8: Namibia soil types and coverage



Coverage of Arenosols soil in Namibia

Source Namibia Atlas 2022

Figure 9: Soil condition at the site



The development site is situated on the edge of the eastern Kalahari, which predominantly consists of sandy Arenosols soil surface, as shown on **Figure 9**.

7.6.3 **Vegetation Conditions:**

Namibia’s vegetation landscape includes five (5) Biomes and is divided into twenty-eight (28) vegetation types regions. The region's climate and soil determine the biome and vegetation within an area (Namibia Atlas, 2022).

As indicated in **Figure 10**, Okakarara falls under the (Acacia) Trees and Shrub Savanna biome vegetation type 19, comprising of thornbush shrubland vegetation (Namibia Atlas, 2022).

Figure 10: Namibia biomes and vegetation types

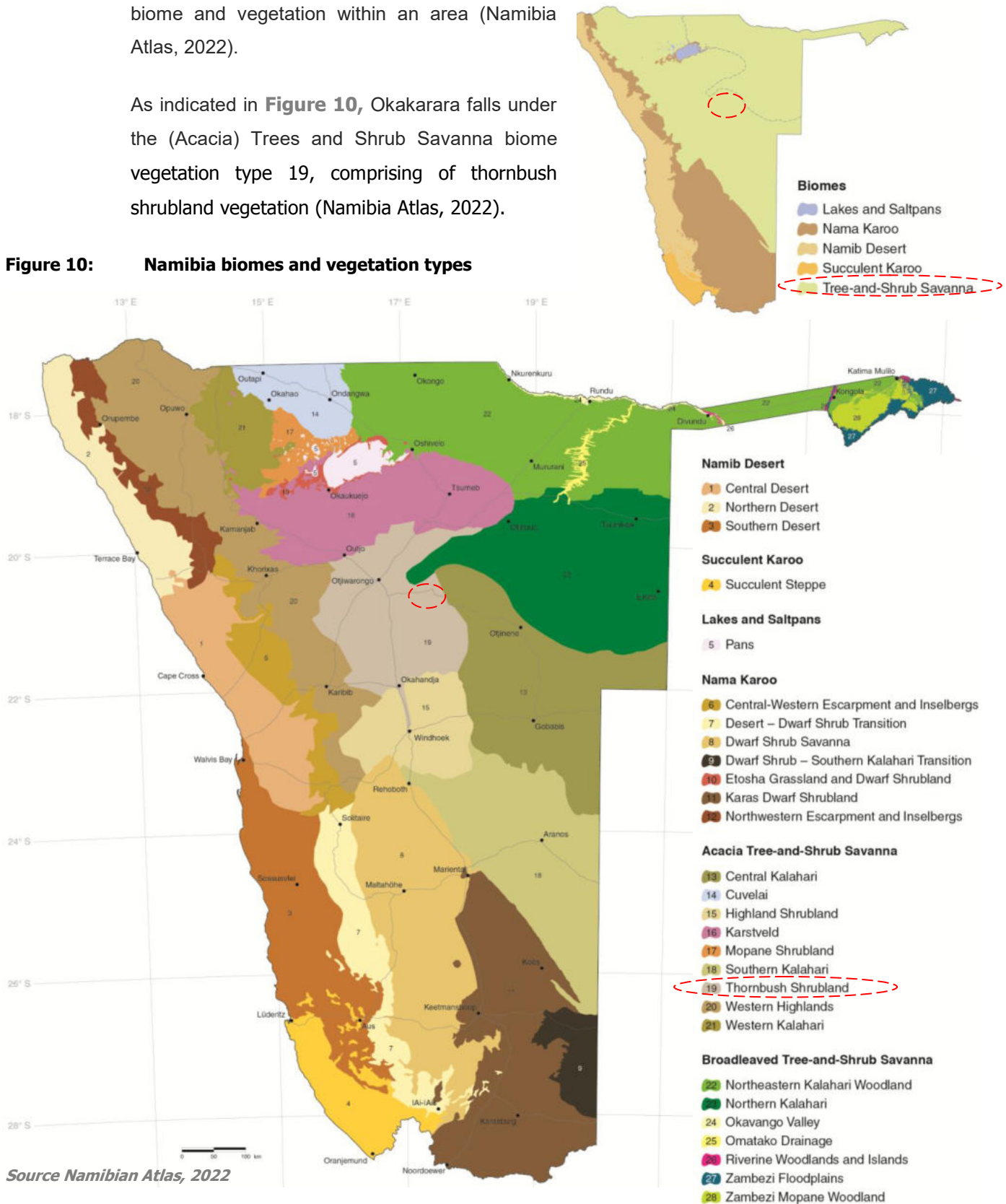


Figure 11: Vegetation at the site



As indicated in the image taken during the site visit, vegetation on the development site consists of thorn trees, shrubs and grassland.

Due to overgrazing, and land clearance for wood harvesting, the site has low green vegetation biomes.

Scattered Trees on the site include Shepherd trees (*Boscia albitrunca*), Umbrella thorn (*Vachellia tortilis*), and some Camelthorn trees (*Vachellia erioloba*).

During the site's planning- and construction phases, emphasis should be placed on accommodating protected trees within road reserves or erven.

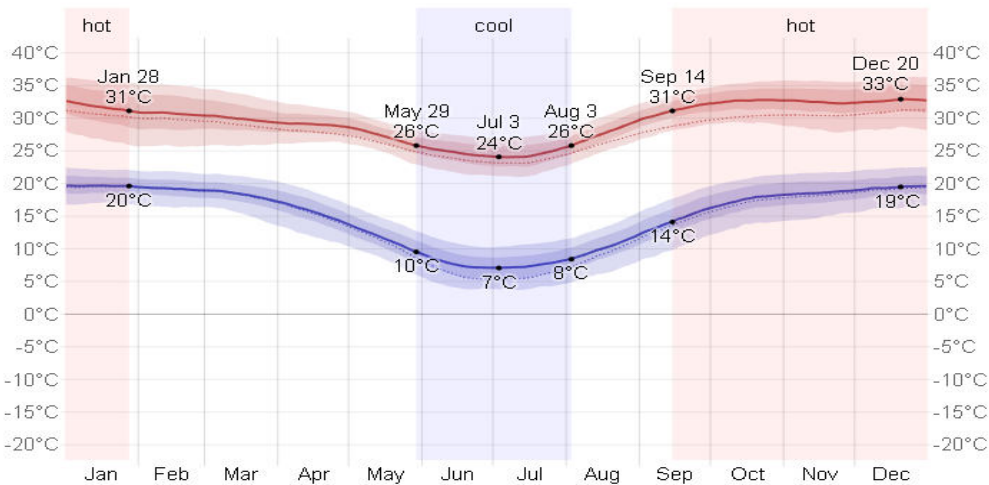
7.6.4 Habitats on Site:

Due to the habitat alteration, the area is ecologically degraded, no longer pristine, and not fully functional at the ecosystem level. It may be best described as an impacted ecosystem, not a natural environment.

7.6.5 Climate, Wind Directions, and Rainfall:

Namibia is a hot and dry country, and due to low levels of humidity in the air, the country experiences low levels of cloud cover and rain and extremely high rates of evaporation. The average monthly temperature at Okakarara ranges from 7 °C in July to 33 °C in October (WeatherSpark.com 2023).

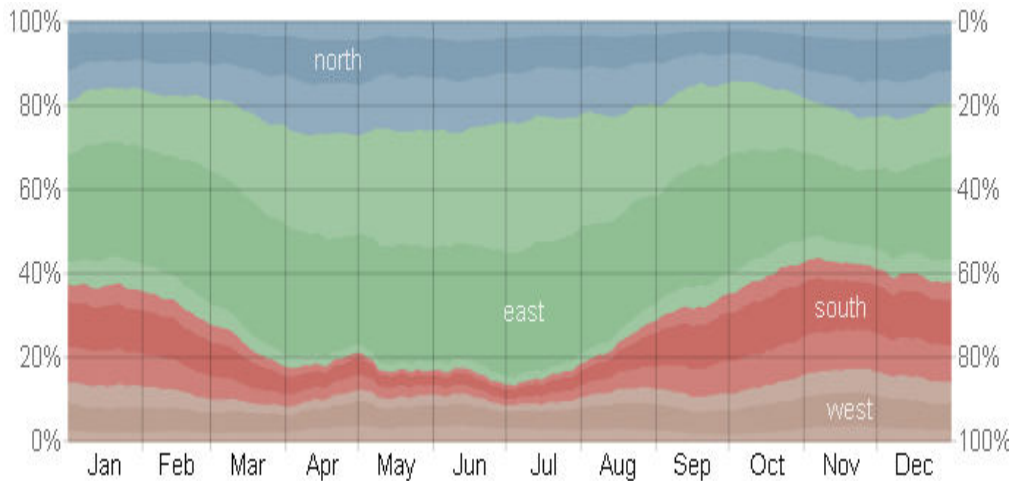
Figure 12: Average high and low temperatures in Okakarara



The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperature (WeatherSpark.com)

The windiest months at Okakarara are from May 20 to November 20, with average wind speeds of more than 12.8 kilometres per hour. As indicated in **Figure 13**, the predominant average hourly wind direction is from the East throughout the year (WeatherSpark.com, 2023).

Figure 13: Average wind speed in Okakarara



The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than 1.6 kph. The lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest) (WeatherSpark.com)

Most rain-bearing clouds are carried into the country by north-easterly winds and blocked by dry air from the south and the west (Mendelsohn et al., 2002). As such, the South and Western parts of the country receive less rainfall than the central and northern parts of the country.

The average monthly humidity at midday ranges from 50% in March to 17% in September. Approximately 42% of the annual rainfall in Okakarara is during February. The average yearly rainfall across the Otjozondjupa region increases from East to west, less than 300mm and not more than 550mm (Mendelsohn et al., 2002).

The most sunshine experienced per day at Okakarara is 13.23 hours in December, and the fewest hours experienced per day are 10.53 hours in June (WeatherSpark.com, 2023).

7.7 STATUS OF PROTECTED AREA

The site itself has no protected status. However, the protected trees are the only environmentally sensitive areas within the development site and should be considered.

7.8 SUMMARY OF THE HABITATION ON SITE

Due to land overgrazing and wood harvesting, extensive habitat alteration occurred. The site is ecologically impacted, no longer pristine and not fully functional at the ecosystem level. It may be best described as an impacted ecosystem, not a natural environment.

Key environmentally relevant features show that:

- ❖ The proposed development is located on Portions 17 and 18 of the Remainder of Farm Okakarara Townlands No. 517. The portions are south of Okakarara Proper and west of the C22 to Okahitua, at - 20°60'83.48"S, 17°45'32.29"E;
- ❖ The site's topography is characterised by a flat downward slope from northwest to southeast, with the highest point being 1437 m above sea level and the lowest is 1436.5 m;
- ❖ The sites are currently vacant and have no infrastructure. Road tracks run through the site, and open areas are used for animal grazing;
- ❖ The development sites are situated on the edge of the eastern Kalahari, which predominantly consists of sandy Arenosols soil;
- ❖ Vegetation on the sites consists of thorn trees, shrubs and grassland;
- ❖ Okakarara's average monthly temperature ranges from 7 °C in July to 33 °C in October. May to November is the windiest month, with average wind speeds of more than 12.8 kilometres per hour. The dominant wind direction is East;
- ❖ The site itself has no protected status.

The screening process showed no significant biodiversity-related issues for the current development, and no aspects require further investigation. The layout should consider the protected trees in the area and, where necessary, apply for permits to remove protected trees. Thus it is recommended that the development proceeds without further assessment, as provided for under articles 33 and 34 of the Environmental Management Act.

8 THE PROJECT TOWNSHIP

The client intends to establish two new townships on Portion 17 and 18 of the Okakarara Townlands No. 517. The townships will consist of mixed-use neighbourhoods, meeting the rising demand for housing and business plots within Okakarara and the Otjozondjupa Region.

8.1 LAYOUT DETAIL

The proposed layouts alter the portion's current zoning from Undetermined to include Single Residential-, General Residential-, Institutional-, Civic, Business, land use, and Public Open Space. The erven shapes and sizes are illustrated in **Figure 15**.

Figure 14: Proposed layouts

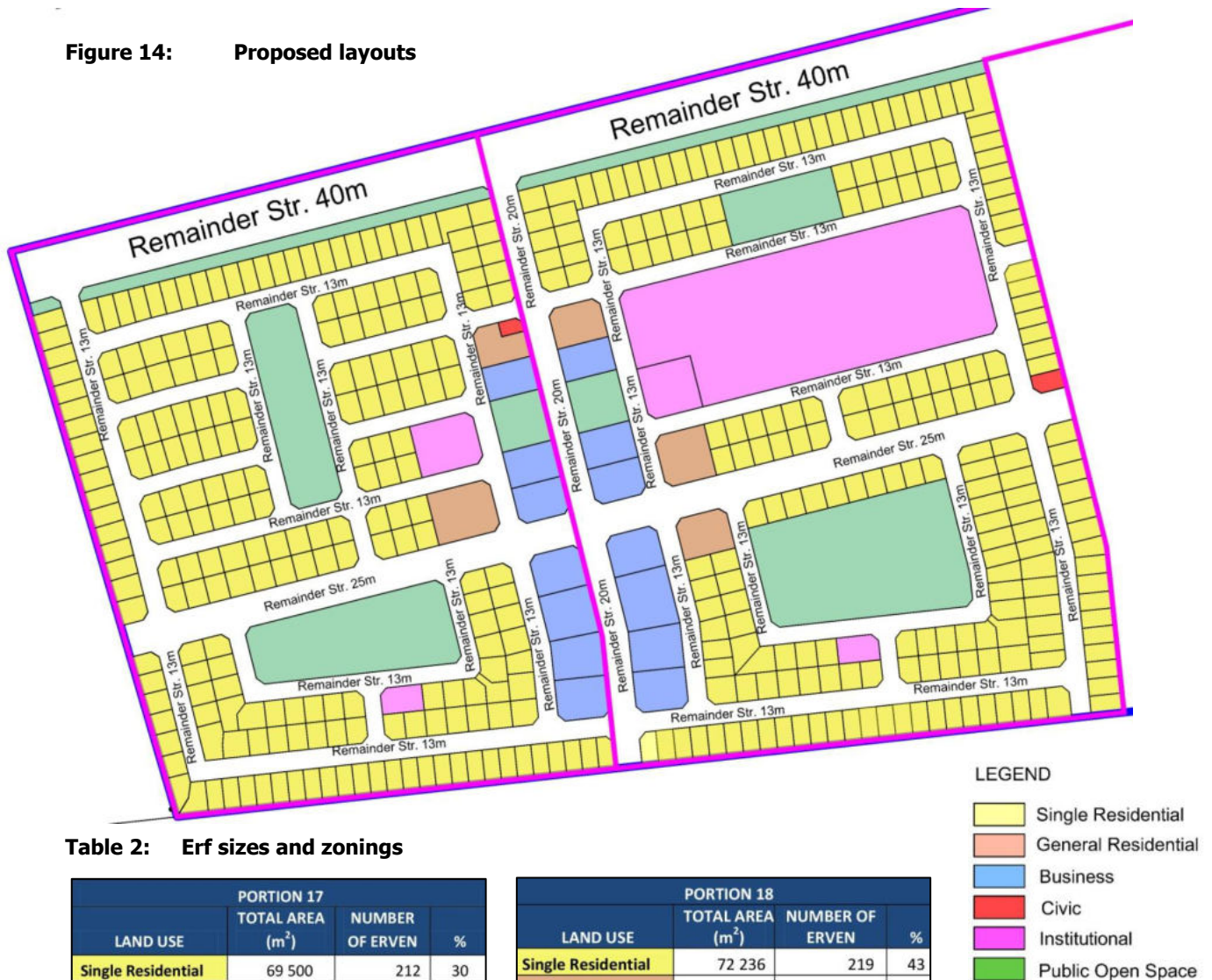


Table 2: Erf sizes and zonings

PORTION 17			
LAND USE	TOTAL AREA (m ²)	NUMBER OF ERVEN	%
Single Residential	69 500	212	30
General Residential	4 014	3	2
Business	8 774	7	4
Institutional	28 184	3	12
Civic	350	1	0.1
Public Open Space	22 555	4	10
Street	101 854		43
Total	235 231	230	100

PORTION 18			
LAND USE	TOTAL AREA (m ²)	NUMBER OF ERVEN	%
Single Residential	72 236	219	43
General Residential	2 942	2	2
Business	8 445	7	5
Institutional	2 563	2	2
Civic	199	1	0.1
Public Open Space	19 612	5	12
Street	61 522		37
Total	167 519	236	100

8.2 THE STREET LAYOUT

The internal road network provides access to the site via 13-, 20-, 25- and 40m wide road reserves. These internal roads run from a northeastern to a southwestern direction, providing access to the proposed layouts.

Road reserves accommodate different infrastructures and means of transport within the new extensions. Figure 15 shows the proposed road layout for the two new extensions.

Figure 15: Street layout



According to the Council for Scientific and Industrial Research (CSIR) Redbook for Human settlement making, local streets should accommodate pedestrians since they form part of the most important low-order social spaces. Moreover, the CSIR guide emphasises that lower income groups need to utilise hard open spaces, such as streets, as part of the urban room, incorporating socialising and playing space.

The layout ultimately provides for mixed-mode streets. These are streets that contain a mix of motorised and non-motorised users. Although these streets are in part dominated by vehicular

movement, they include the hard open space components of sidewalks, bicycle paths and space for the provision of engineering services.

8.2.1 **Provision for Drainage:**

Stormwater drainage should be designed, and culverts need to be used to accommodate the water flow.

9 **POTENTIAL IMPACTS**

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

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

9.1 **SUMMARY OF POTENTIAL IMPACTS**

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

9.1.1 **Benefits of the Project:**

- Provision for serviced erven;
- Stimulation of economic development and providing new employment opportunities during construction; and
- Stimulation of the health and wellness of the Okakarara and the Otjozondjupa Region.

9.1.2 **Potential Negative Impacts during Construction:**

- Impact of removal of vegetation from the site;

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

9.1.3 **Potential Negative Impacts during Operations:**

- Impact of waste during operation.

9.2 POTENTIAL IMPACTS

9.2.1 **Project Benefits:**

- **Provide for serviced erven.** The layout process creates a formal development framework to prevent uncontrolled settlement growth and address the current housing demand within Okakarara and the region.

The development will provide the community access to adequately planned erven with specified erf boundaries. The provision of service erven ensures that the residents have a formal and permanent land occupation and security of tenure.

- **Stimulate employment creation and local economic development.** The development will lead to employment creation during the construction and operation phases. By providing for additional business erven, the project will render services within the formal economy of Okakarara, employ staff, contribute to rates and taxes and spend money within the same economy.
- **Stimulate health and wellness within the Okakarara Townlands and region.** The layout provides much-needed service connections that are safe and in line with the layout. It will also create properly aligned roads which will ease traffic circulation within the townships. Clearly defined routes will allow for the provision of pedestrian infrastructure, creating a safe walking environment.

9.2.2 **Negative Impacts during Construction:**

- **Impact of the removal of protected trees from the site.** Construction activities will impact some protected trees on the site. The planner prepared the layout in such a way as to minimise the removal of trees. Unfortunately, trees will be removed due to the construction of the roads.

- **Impact on traffic flow during construction.** Construction vehicles would need to haul the excavated soil to a disposal site and provide building materials and other supplies (i.e. fuel etc.) to the construction site, most of which could be delivered by truck. Construction vehicles are most likely to pass near erven and disrupt traffic flow (although the exact access routes to the site are yet to be defined).
- **Impact of dust.** The movement of construction vehicles on bare soil will cause excessive dust, exposing the community and workers to dust pollution and affecting their health. Preventative measures should be put in place to prevent excessive dust.
- **Impact of potential construction noise.** Construction machinery creates substantial noise, and this will impact the surrounding community. Constant noise can cause stress and negative health impacts on nearby residents.
- **Impact of construction waste.** Solid waste is the expected significant source of waste at the construction site. If no waste management plan is in place to address general and hazardous waste disposal, it can lead to water and soil pollution on the site and/or within the water areas.
- **Impact on the health and safety of workers.** Construction activities always have potential risks for workers. Inadequate site management measures can expose workers to hazardous chemicals, dust, and noise. A lack of notices and signs within the area where deep excavation work is done can put workers' lives in danger.

9.2.3 Potential Negative Impacts during Operations:

- **Impact of operational waste.** Solid household waste is the expected source of waste in the two townships after the development phase. In the event that the Town Council has no Waste Management Plan (WMP) or Waste Removal Plan (WRP) to address general and hazardous waste disposal at the extensions. It can lead to soil pollution on the site and/or within the water areas.

9.3 DEALING WITH RESIDUAL IMPACTS

9.3.1 Residual Social Impacts:

There is no residual Social Impacts.

9.3.2 **Residual Environmental Impacts:**

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

- The development project will create dust and noise during the construction phase. This will be limited; the Environmental Management Plan (EMP) contains methods to limit it.

- The development will have an impact on traffic during the construction phase.

To minimise the increase in transportation during the construction phase, mitigation measures to manage the vehicles on the construction site when services are included in the EMP provisions.

- As mentioned before, solid waste is the expected source of waste at the construction site. Mitigation methods are contained in the EMP regarding a WMP for the construction site.

- During the construction phase, there will be a potential impact on the workers' health and safety due to their work environment. This will be limited, and methods to restrict it are contained in the EMP.

- Accommodating the trees within the development site: The planner prepared the layout in such a way as to minimise the impact the construction of roads will have on the removal of trees. Trees are accommodated within individual erven, road reserves and on public open spaces within the layout.

Not all trees can be protected within the layout. Before construction commences, a Tree Management Plan (TMP) should be compiled to address the replacement and permits to remove protected trees.

- Solid household waste is the expected source of waste in the new townships. Mitigation methods are contained in the EMP regarding the removal of waste within the new townships.

10 SUMMARY AND APPLICATION

10.1 PROJECT IMPACTS, AVOIDANCE MEASURES AND RESIDUAL IMPACTS

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
<i>STIMULATE LOCAL ECONOMIC DEVELOPMENT AND CREATE EMPLOYMENT OPPORTUNITIES:</i>			<p>During the development phase, the construction company will render services within the formal economy, employ staff, pay rates and taxes and spend money within the same economy.</p> <p>Emphasis should be placed on the requirement and employment of local people.</p>	
<i>PROVIDING SERVICED RESIDENTIAL ERVEN:</i>			<p>The project will lead to formal and permanent land occupation, tenure security, access to capital and partaking in the economy, and ultimately to wealth creation in the operational phase.</p>	
<i>STIMULATE THE HEALTH AND WELLNESS OF THE COMMUNITY:</i>			<p>THE DEVELOPMENT:</p> <p>Provide that all services will be on the higher road reserves.</p> <p>Provide a closed system sewer system, which will prevent pollution during flooding.</p> <p>Provide pedestrian infrastructure.</p>	

POTENTIAL IMPACT:	MEASURES:			RESIDUAL IMPACTS:
	AVOIDANCE:	MITIGATION:	ENHANCEMENT:	
POTENTIAL REMOVAL OF PROTECTED TREES:	Avoid removing protected tree species.	<p>The EMP mitigation measures for protecting protected plant species on the site include:</p> <ul style="list-style-type: none"> Protected Trees should be accommodated within individual erven or road reserves. A Tree Management plan needs to be compiled before the development comments. Permits should be obtained from the MEFT (Department of Forestry) to remove any protected tree species. <p>The timeline for the potential impact is short-term, and the responsibility lies with the planner and contractor.</p>		<i>The planner could not accommodate all the protected trees on the site. Therefore, measures are included in the EMP.</i>

<p>POTENTIAL DUST AND NOISE ON THE CONSTRUCTION SITE:</p>	<p>Avoid dust and noise during the construction phase.</p>	<p>The EMP mitigation measures for</p> <p>Dust:</p> <ul style="list-style-type: none"> No removal of vegetation or soil on the site except where necessary during the construction phase. <p>Noise:</p> <ul style="list-style-type: none"> Construction work will be restricted between 07h00 and 18h00. <p>The timeline for the potential impact is short-term, and the responsibility lies with the contractor and the Okakarara Town Council.</p>		<p><i>Not all dust and noise can be prevented.</i></p>
<p>POTENTIAL IN AN INCREASE IN TRAFFIC DURING THE CONSTRUCTION PHASE:</p>	<p>Avoid uncontrolled increases in traffic during the construction phase.</p>	<p>The EMP mitigation measures for traffic at the site include:</p> <ul style="list-style-type: none"> Traffic during the construction phase will be restricted between 07h00 and 18h00. <p>The timeline for the potential impact is short-term, and the responsibility lies with the contractor and the Town Council.</p>		<p><i>An increase in traffic can be managed, although the increase in traffic will still potentially impact nearby residents.</i></p>
<p>HEALTH AND SAFETY OF WORKERS:</p>	<p>Avoid health and safety impacts on workers during the construction phase.</p>	<p>The EMP mitigation measures for the health and safety of workers at the site include:</p> <ul style="list-style-type: none"> Construction practices and safety procedures need to be applied. <p>The timeline for the potential impact is short-term, and the</p>		<p><i>Not all the health and safety aspects of the workers can be prevented.</i></p>

		responsibility lies with the contractor.		
WASTE MANAGEMENT:	Avoid pollution as a result of no waste management.	<p>The EMP mitigation measures for the waste on the construction site and during operations include:</p> <ul style="list-style-type: none"> • During construction, a waste management plan should be used on the site. • The townships need to be included in the Okakarara Town Councils' waste management system or program during the operational phase. <p>The potential impact timeline is short-term during construction and long-term during operations.</p> <p>The responsibility lies with the contractor/ Town Council.</p>		<i>Not all pollution can be prevented.</i>

11 APPLICATION FOR ENVIRONMENTAL CLEARANCE

Given these baseline investigation findings, no future environmental impacts were identified due to creating the street portions or the construction activities within the Okakarara development area.

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