MS. KATRINA ELIFAS

SCOPING (INCLUDING IMPACT ASSESSMENT) FOR THE PROPOSED REZONING AND SUBDIVISION OF ERF 1204 FROM BUSINESS TO 8 SINGLE UNDEVELOPED ERVEN AND THE CREATION OF A STREET

ONDANGWA, OSHANA REGION

APRIL 2023

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CONSULTANT'S EXPERTISE

I.N.K Enviro Consultants cc is the independent firm of environmental consultants that has been appointed by mS. Katrina Elifas to conduct the EIA process.

Immanuel N. Katali, the Environmental Specialist holds a B.Arts (Honors) Geography, Environmental Studies and Sociology and has over seven years of relevant experience in conducting/managing Environmental Impact Assessments (EIAs), Social Impact Assessments (SIA), compiling Environmental Management Plans (EMPs) and Environmental Compliance/Monitoring Audits in Namibia. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).

DECLARATION OF INDEPENDENCE AND DISCLAIMER

The environmental consultant herewith declare that this report represents an independent assessment of the proposed rezoning activities, on the request of Ms. Katrina Elifas.

I.N.K Enviro Consultants cc has prepared this report based on an agreed scope of work and acts in all professional manner as an independent environmental consultant to Ms. Katrina Elifasand exercises all reasonable skill and care in the provision of its environmental professional services in a manner consistent with the level of expertise exercised by members of the environmental profession.

The information, statements and commentary contained in this report have been prepared by I.N.K Enviro Consultants cc from information provided by Ms. Katrina Elifas. I.N.K Enviro Consultants cc does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the party that provided the information or any conclusions reached. I.N.K Enviro Consultants cc has based this report on information received or obtained, on the basis that such information is accurate and, where it is represented to I.N.K Enviro Consultants cc as such, complete.

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1 INTRODUCTION

1.1 Objectives of the Study and Opportunity to Comment

This Scoping (including impact assessment) Report has been compiled and was distributed as part of the EIA process that is being undertaken for the proposed Rezoning and Subdivision of Erf 1204 from business to 8 single undeveloped erven and the creation of a street.

The Scoping Report summarises the EIA process being followed and provides an overview of the affected environment. It includes an assessment of the environmental impacts that the activities are likely to have and sets out the consultants' recommendations. The proposed management and mitigation measures relating to the construction and operation activities are documented in an Environmental Management Plan (EMP).

Registered Interested and Affected Parties (I&APs) are being provided with the opportunity to comment on this Scoping (including impacts assessment) Report. Once the comment period ends, the report will be updated to a final report with due consideration of the comments received and will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for decision-making.

1.2 Introduction to the Proposed Project

Ms. Katrina Elifas, intends on obtaining an Environmental Clearance Certificate (ECC) for for the Rezoning and Subdivision of Erf 1204 from business to 8 single undeveloped erven measuring a total of 2798 m^2 and the creation of a street (refer to Figure 1). Erf 878 is located in Ondangwa Extension 3, Oshana Region, Namibia.

The proposed site and immediate surrounding areas comprise of the following:

- Public Open Space.
- Residential houses east of the proposed site.

Prior to commencement of the construction activities, an Environmental Clearance Certificate (ECC) is required on the basis of an approved Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP). It is with this background that, I.N.K Enviro Consultants cc (I.N.K) an independent firm of consultants, was appointed to undertake the Environmental Impact Assessment process for this project. More details regarding the EIA process that was followed are presented in Section 1.4.1.

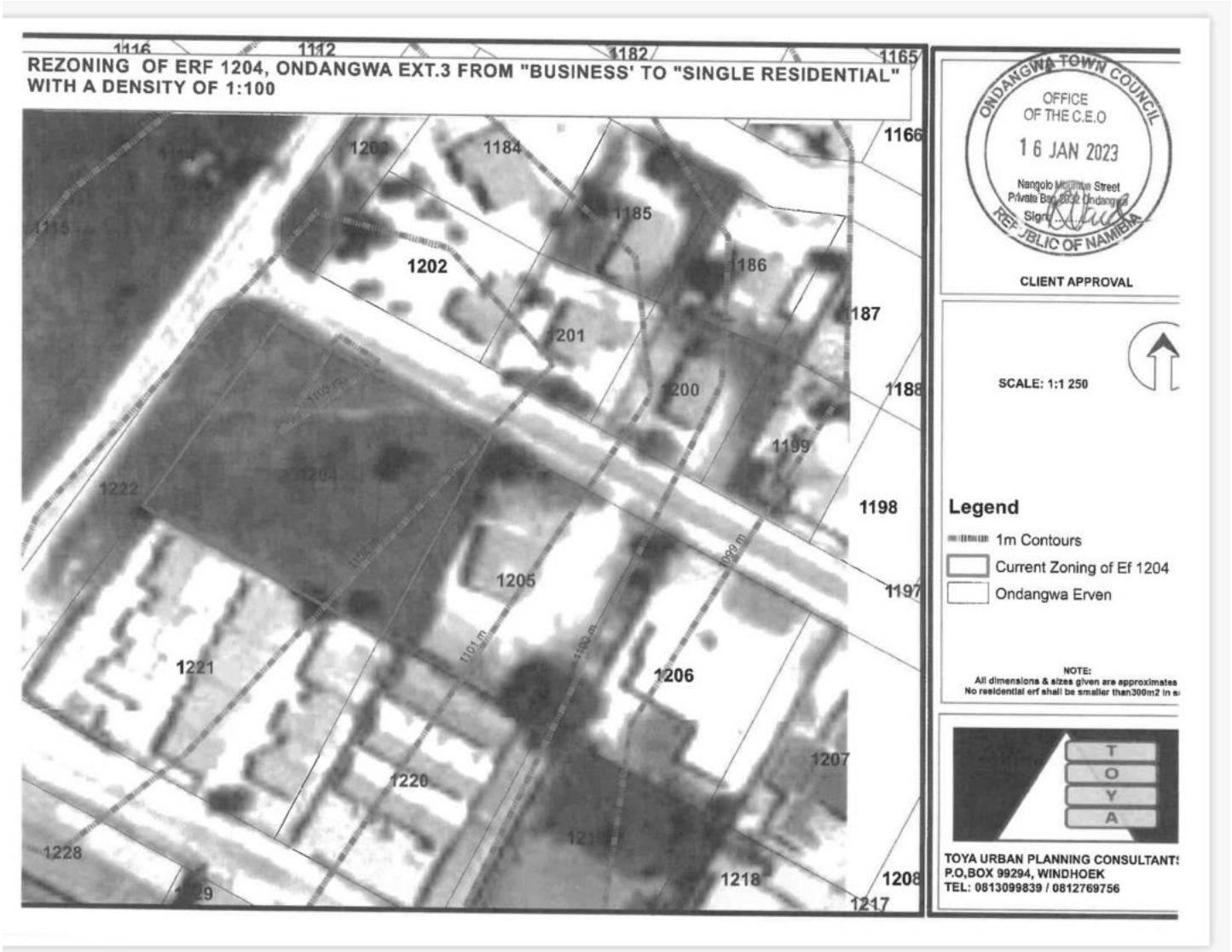

Figure 1: Locality Map (A)

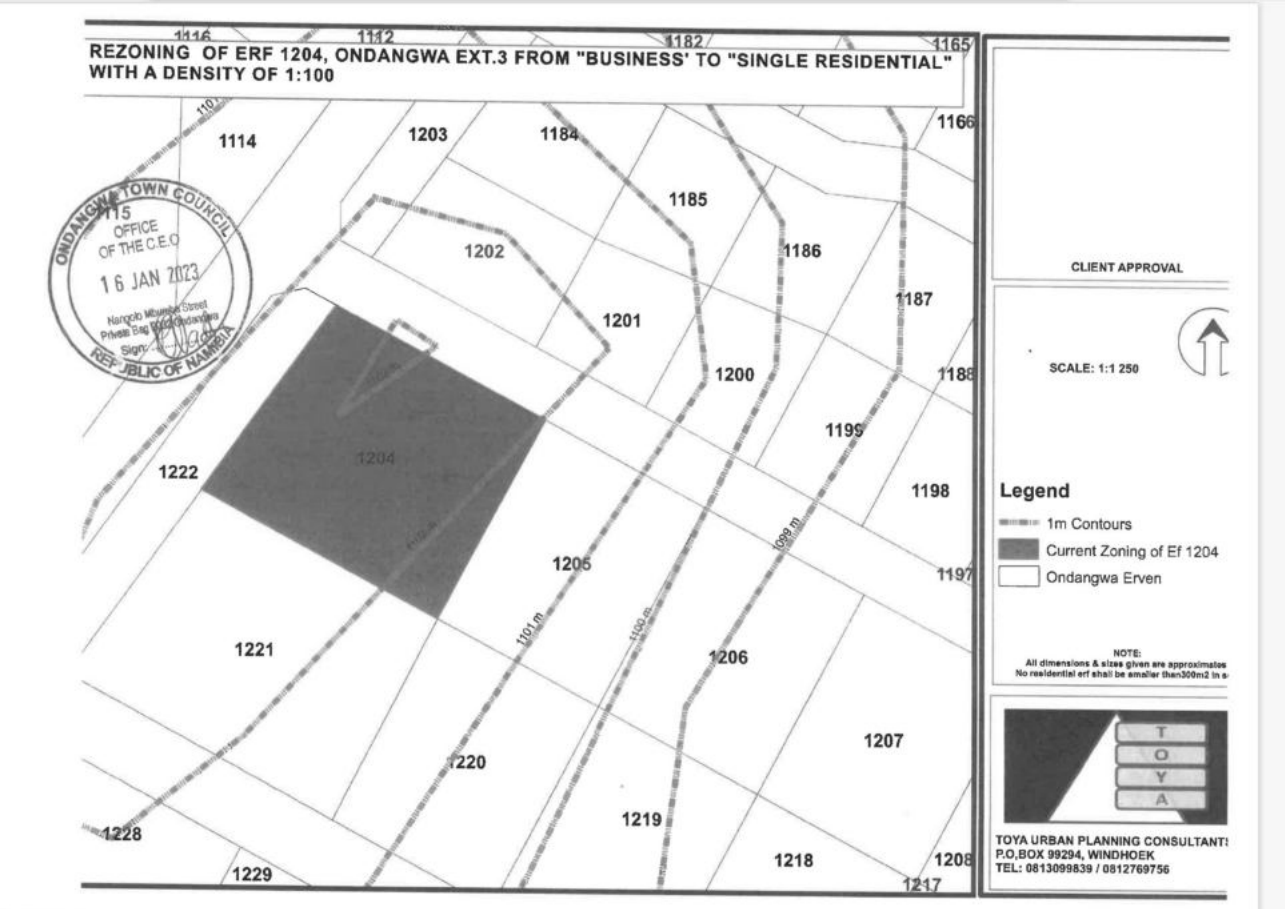

Figure 2: Locality Map (B)

1.3 Project Motivation (Need and Desirability)

The Namibian government identified housing as a priority area in 1990 and considers housing as both an enabler of economic growth and a tool for reducing poverty by creating sustainable communities.

The high rate of growth in the number of urban households is due largely to people moving to towns and cities from rural areas in search of better services and jobs, and by internal reproduction and household formation within the urban areas. This strongly suggests that solving the urban housing question is of key importance to a growing number of citizens and is central to addressing the overall problem of landlessness. The challenge facing the project proponent is its contribution towards achieving these goals while at the same time preventing and/or mitigating potential negative social and environmental impacts.

1.4 Introduction to the Environmental Impact Assessment

Environmental Impact Assessments are regulated by the Ministry of Environment, Forestry and Tourism (MEFT) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and enacted on 6 February 2012. The Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 6 February 2012.

1.4.1 EIA Process

The EIA process that has been followed is summarized in the table below. The public consultation was conducted through the rezoning and town planning statutory applications.

Table 1: EIA Process

EIA OBJECTIVES	CORRESPONDING ACTIVITIES
Project initiation, Screening Phase	
◆ Understanding of the environmental and social baseline relating to the proposed Project. ◆ Notify the decision-making authority of the proposed Project. ◆ Initiate the environmental impact assessment process. ◆ Site visits and identify environmental issues. ◆ Identify key stakeholders and early identification of other I&APs.	◆ Project Inception and initiation meetings to discuss the Project and EIA process requirements. ◆ Liaise with various Specialists ◆ Draft EIA Schedule ◆ Initiate baseline studies. ◆ Submit Application for authorizations and a Background information Document (BID) to the competent authorities. ◆ Register the Project and Applications for environmental clearances with MEFT (DEA) on their online portal. ◆ Early identification of environmental aspects and potential impacts associated with the proposed Project.
Scoping (Combined Assessment Phase)	
◆ Notify other regulatory authorities and I&APs of the proposed Project (via	◆ Develop Public Participatory Process (PPP) Programme.

EIA OBJECTIVES	CORRESPONDING ACTIVITIES
newspaper advertisements, BID, emails, site notices and telephone calls). ◆ Conduct Key Stakeholder and Focus Group meetings. ◆ Carry out specialist investigations and establish baseline environmental conditions. ◆ Determine the terms of reference for additional assessment work. ◆ Compile Scoping Report and Issues and Response Report (IRR) ◆ Distribute the Scoping Report for review and comment by relevant authorities and I&APs. ◆ Consider comments received and compile the final report. ◆ Submit the final reports to relevant Ministries for their review and final decision on the Applications for environmental clearance.	◆ Develop I&AP database. ◆ Prepare BID and distribute to I&APs. ◆ Notify government authorities and IAPs of the Project and EIA process (telephone calls, e-mails, BID newspaper advertisements and site notices). ◆ IAP registration and comments. ◆ Focus group meetings with authorities and IAPs. ◆ Investigations by appointed specialists. ◆ Compilation of Scoping Report and EMPs. ◆ Distribute Scoping Report and EMPs to all IAPs for review and comments. ◆ Obtain comments and update the Scoping Report and EMPs. ◆ Submit final documents to MME, MAWLR and MEFT for review and decision-making.

Within this framework, the required components of the scoping (including impact assessment) report are discussed in more detail as part of the scoping Methodology in Section 2 below.

EIAs are influenced by national legislation and a range of guidelines. The legislation applicable to this project and the EIA process is discussed further in Section 3 below.

1.4.2 EIA Team

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Ms. Katrina Elifas to undertake the environmental impact assessment and related processes.

Immanuel N. Katali, the EIA project manager and lead practitioner holds a B.Arts (Honours) Degree in Geography, Environmental Studies and Sociology and has over seven years of relevant experience in conducting/managing EIAs, compiling EMPs and Socio-Economic Studies. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).

2 SCOPING MEFTHODOLOGY

2.1 Information collection

I.NK used various information sources to identify and assess the issues associated with the proposed project. These include:

- Site visits by I.N.K;
- Consultation with Project Technical Team (Ms. Katrina Elifas);
- Consultation with MEFT via online application system;
- Atlas of Namibia;
- Google Earth; and
- Internet sources.

2.2 Scoping Report

The main purpose of this Scoping Report is to indicate which environmental aspects relating to the proposed project might have an impact on the environment, to assess them and to provide management and mitigation measures to avoid or minimise these impacts.

Table 2 outlines the Scoping Report requirements as set out in Section 8 of the Environmental Impact Assessment Regulations that were promulgated in February 2012 in terms of the Environmental Management Act, 7 of 2007.

Table 2: Scoping report Requirements stipulated in the EIA regulations

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(a) the curriculum vitae of the EAPs who prepared the report;	Section 1.4.2 and
(b) a description of the proposed activity;	Section 4
(c) a description of the site on which the activity is to be undertaken and the location of the activity on the site;	Sections 4 & 6
(d) a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Sections 6, 7 and 8
(e) an identification of laws and guidelines that have been considered in the preparation of the Scoping Report;	Section 3
(f) details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including -	Sections 2.3, 2.4, 2.5

(i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; and (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	
(g) a description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Sections 1.3 and 5
(h) a description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Sections 7 and 8
(i) terms of reference for the detailed assessment; and	Section 7 & 8
(j) a management plan, which includes - (i) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure; (ii) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and (iii) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.	Separate Document

2.3 Public participation process

The public consultation was conducted through the rezoning and town planning statutory applications.

The public participation process for the proposed project is conducted to ensure that all persons and/or organisations that may be affected by, or interested in the proposed project, were informed of the project and could register their views and concerns. By consulting with relevant authorities and I&APs, the range of environmental issues to be considered in this Scoping Report (including the assessment of impacts) has been given specific context and focus.

2.4 Interested & Affected Parties (I&APs)

The following table (Table 3) provides a list of persons, group of persons or organisations that were informed about the project and were requested to register as I&APs should they be interested and/or affected.

Table 3: Rezoning Activities Stakeholders

IAP Grouping	Organisation
Government Ministries	▪ Ministry of Environment, Forestry and Tourism (MEFT); • Department of Environmental Affairs (DEA);
Local Governance	The Ondangwa Town Council
Site Neighbours	Ondangwa Extension 3 Residents
Media	Newspaper adverts: Die Republikein and The Namibian Sun
Other interested and affected parties	Any other people with an interest in the proposed project or who may be affected by the proposed project.

2.5 Steps in the consultation process

Table 4 sets out the steps that were followed as part of the consultation process:

Table 4: Consultation process with I&APs and Authorities

TASK	DESCRIPTION
Notification - regulatory authorities and IAPs	
Notification to	I.N.K submitted the Application Form (online system) as a form of project

TASK	DESCRIPTION
Notification - regulatory authorities and IAPs	
MEFT	registration and notification to MEFT.
IAP identification	A stakeholder database was developed for the proposed project and EIA process. Additional I&APs will be updated during the EIA process as required.
Distribution of background information document (BID), flyers and stakeholders meeting invitation letters	BIDs were made available to all I&APs on the project's stakeholder database and were available at the scoping meetings. Copies of the BID were available on request to I.N.K. The purpose of the BID was to inform I&APs and authorities about the proposed project, the EIA process, possible environmental impacts and means of providing input into the EIA process. Attached to the BID was a registration and response form, which provided I&APs with an opportunity to submit their names, contact details and comments on the project.
Newspaper Advertisements	Advertisements were placed as follows: ◆ Die Republikein (08 and 15 June 2022) ◆ The Namibian Sun (08 and 15 June 2022)
Scoping Meetings	Several consultations were made with I&APs. This included meetings, email and telephonic conversations.
MEFT review of Scoping Report and EMP	A copy of the final Scoping Report, including authority and I&AP review comments, will be submitted to MEFT on completion of the public review process via the online application system.

3 ENVIRONMENTAL LAWS AND POLICY

This section discusses and describes the governing laws, policies and acts that are relevant to the environmental impact assessment for the proposed Horticulture Irrigation Project.

The Republic of Namibia has five tiers of law and several policies relevant to environmental assessment and protection, which includes:

- The Constitution
- Statutory law
- Common law
- Customary law
- International law

Key policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

3.1 Legislation Applicable to the Proposed Project

- **The Constitution of the Republic of Namibia as Amended:** Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.
- **Environmental Management Act No. 7 of 2007 (EMA) and EIA Regulations GN 28, 29, and 30 of EMA (2012):** GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.
- **Water Act No. 54 of 1956:** Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.

- **Local Authorities Act No. 23 of 1992:** The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.
- **National Heritage Act No. 27 of 2004:** The Act is aimed at protecting, conserving and registering places and objects of heritage significance.

4 PROJECT DESCRIPTION

4.1 Proposed Rezoning Activities

Ms. Katrina Elifas, intends on obtaining an Environmental Clearance Certificate (ECC) for for the rezoning of a portion of the public open space erf 878, and subdivide it into ten (10) single residential ervens measuring a total of 2798 m^2 .

4.2 Engineering services

The 8 Erven will be connected to the municipal reticulation system of the Ondangwa Town Council. The erven will be connected to the existing services that are anticipated to be sufficient for the proposed development.

4.3 Construction Activities (10 houses)

Construction activities will take place during the establishment and preparation of the sites. Therefore, it is expected that construction will involve the following activities:

- Appoint subcontractors, labours, etc.
- Clearing and grubbing and other earth moving activities.
- Stockpiling topsoil and sub-soil.
- Foundation excavations.
- Setting up contractor's laydown areas.
- Digging of foundations and trenches.
- Delivery of materials – storage and handling of material such as sand, rock, cement, etc.
- General building/construction activities including, amongst others: mixing of concrete; operation of construction vehicles and machinery; civil; painting; etc.

4.3.1 Site Preparations for Infrastructure

Site preparation includes the demarcation of the footprint of the proposed development and the laydown area to be located ±15 m for each of the proposed project component and infrastructure site, for the storage and partial assembly of the project material or equipment to be installed or constructed.

4.3.2 Waste Management during construction activities

Relatively small quantities of waste is anticipated to be generated during the construction phase. Waste shall be transported to the nearest waste disposal site.

4.3.3 Transport routes/Access

The site is located along exisiting roads and tracks within the townland.

4.3.4 Storage of Equipment and Tools

Equipment and tools used on a daily basis will be stored in a temporary storage facility on site.

4.3.5 Rehabilitation of temporary construction sites and laydown area

The removal of all temporary construction equipment will be undertaken at the end of construction activities. This will be done as per Environmental Management Plan recommendations.

5 PROJECT ALTERNATIVES

5.1 The “no project” option

With reference to section 1.3, The high rate of growth in the number of urban households is due largely to people moving to towns and cities from rural areas in search of better services and jobs, and by internal reproduction and household formation within the urban areas. This strongly suggests that solving the urban housing question is of key importance to a growing number of citizens and is central to addressing the overall problem of landlessness.

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the land will remain zoned as Public Open Space and the construction of the proposed houses will not take place.

The proponent will have to ensure that the identified mitigation measures and commitments to address the potential impacts will appropriately be implemented and adhered to.

Without the implementation and adherence of the air pollution commitments in the EMP, the project will be a “fatal flaw”.

6 DESCRIPTION OF THE CURRENT ENVIRONMENT

This section was compiled utilising the following sources of information:

- Visual observations during a site visit by I.N.K
- Google Earth
- Atlas of Namibia
- Internet sources

6.1 Climate

The average temperature for the year in Ondangwa is ± 20 °C. The warmest month, on average, is November with an average temperature of ± 26.4°C. The coolest month on average is July, with an average temperature of ± 17.2°C.

The wind experienced at any given location is highly dependent on local topography and other factors. The average hourly wind speed in Ondangwa experiences mild seasonal variation over the course of the year.

Ondangwa experience the highest winds speed in the months of May to October, with average wind speeds of more than ± 8.2 km per hour while October to May experience the lowest winds. The calmest day of the year is February, with an average hourly wind speed of ± 6.8 km per hour.

The average amount of precipitation for the year in Ondangwa is ± 500.4 mm. The month with the most precipitation on average is December to February with ± 119.4 mm of precipitation. The month with the least precipitation on average is June with an average of 0 mm. There is an average of ± 57.3 days of precipitation, with the most precipitation occurring in February with ± 12.8 days and the least precipitation occurring in July with 0.0 days.

6.2 Socio-Economic

6.2.1 Population Density

To profit from the better infrastructure and the labour opportunities more and more people moved into the existing growth centre of Ondangwa town. Isolated villages are distributed throughout the area (MAWF, 2006).

6.2.2 Land-use

The Namibia Housing Enterprise has constructed low and medium income houses as part of the National Mass Housing project in the surrounding area. In addition, many serviced plots and unserviced land for housing and other business undertakings are available in the town.

6.2.3 Urban Infrastructure

Basic urban services that are in Ondangwa are water, sewer, gravel streets, and power reticulation. These services are mainly constructed in all townships. The Town has good infrastructure and services (road networks, telecommunications, postal services, schools, hospitals, safety and security services and basic urban services (i.e. water, sewer, electrical reticulation and shopping complexes. Ondangwa is linked to the national transport node infrastructure. Ondangwa is also connected to other growth centres mainly Oshakati and Omuthiya. The telephonic and mobile communication infrastructures are well established.

6.3 Traffic

From initial site observations, the current traffic numbers on the gravel road appears to be low. The construction activities is not anticipated to interrupt traffic flow.

6.4 Air Quality

From visual observations, the main source of air quality impacts in the project will come from the adjacent gravel street road and various construction activities in the surrounding area.. It is expected that fugitive dust may be present during dry, windy conditions.

6.5 Visual

The area is potentially not sensitive to change in general, due to the nature of the town development and existing infrastructure.

6.6 Hydrogeology

6.6.1 Surface Water

The region belongs to the very flat hydro geological Cuvelai Basin dipping from some 1150 m above sea level (asl) in the north east to 1080m asl in the Etosha Pan.The proposed site is surrounded by existing water flooding plain which flows during the rainy season which extends from October to April with the highest amount falling between December and March. Because of the high average evaporation rates, it is estimated that a considerable amount of rainfall (80 per cent) evaporates shortly after precipitation (MWAF, 2006).

6.6.2 Groundwater

The site lies within the Multi-zoned Aquifer comprises unconsolidated to semi-consolidated sediments of the Kalahari Sequence, mainly sand, clay and calcrete/dolocrete but also large evaporitic deposits. The groundwater quality is mainly brackish with shallow freshwater in places. The aquifer is separated from the Oshana Multi-layered Aquifer because it is not recharged by the Cuvelai drainage system. Rechargevtakes place by means of lateral throughflow from the Etosha Limestone Aquifer and Otavi Dolomite Aquifer aquifers in the west (MAWF, 2006).

6.7 Biodiversity

6.7.1 Flora

The project area is located in the south- west and the vegetation in the proposed area is sparsely distributed and characterized by shrubs species and grasses. The project area is dominated by Terminalia pruinoides with a few other shurbs like Catophractes alexandri, Grewia flavescens and Grewia. Bicolor.

Apart from small patches of grasslands where the site lies, the area is largely disturbed by the town development and human settlements and movements of people surrounding the proposed site.

6.7.2 Fauna

The proposed site lies within the urban centre which is largely characterised by residential houses as part of the town development. Few animals that are known to be found near the study area includes, livestock which can be seen grazing in the surrounding areas.

6.8 Noise

Existing noise sources within and around the project site include:

- natural sounds from wind, animals, and birds;
- vehicle movement on the adjacent gravel street road;

The immediate surroundings of the project site has inhabitants of the Ondangwa Extension 3. The sensitivity of noise receptors usually increases at night when conditions are quiet, and ambient noise levels are at their lowest. However, no construction activities are anticipated at night time.

6.9 Heritage

No visible archaeological artefacts or heritage sites were noted in the proposed project development area by I.N.K during the site visit and neither did the Ondangwa Town Council raise any such concerns.

6.10 Soil

The project is characterized by loamy-textured soils. Loamy textured soils are commonly described as medium textured with functionally-equal contributions of sand, silt, and clay.

7 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS

Table 6: Environmental aspects and potential impacts associated with the rezoning activities

ACTIVITY / FACILITY	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
Construction Phase	Soil stripping (earthmoving equipment)	Potential impact on biodiversity (physical impacts and general disturbance) • Loss of habitat • Loss of biodiversity	With reference to section 6.7.1, Apart from small patches of grasslands within the water flooding pan where the site lies, the area is largely disturbed by the town development (pipeline) and human settlements and movements of people surrounding the proposed site. The related management and mitigation measures are stipulated in the EMP.	**R01**
		Potential impact on archaeological sites • Destruction and loss of archaeological sites	It is unlikely that any heritage artefacts can be found on site, due to the fact that the site has already been disturbed to a certain extent. The related management and mitigation measures are stipulated in the EMP.	**R02**
	Oil and diesel spillages from vehicles and other equipment	Impact on surface water and groundwater water quality.	The proposed housing construction activities may pose the risk of contamination of soil, mainly through accidental spills of oil and diesel etc. Due to the nature of the project, there is a low risk of big hydrocarbon spillages. The related management and mitigation measures are stipulated in the EMP.	**R03**

ACTIVITY / FACILITY	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
	Dust	Impact on 3rd party health and safety	The immediate surroundings of the project site has communities inhabited in the area, therefore impact of air pollution on communities is identified. Refer to Section 8 for the assessment of the potential impacts on Air Quality. The related management and mitigation measures are stipulated in the EMP.	**R04**
	Traffic	Injury to people and animals and 3rd party health and safety impacts	With reference to section 6.3, the current traffic numbers on the gravel road appears to be low. The construction activities is not anticipated to interrupt traffic flow. The related management and mitigation measures are stipulated in the EMP.	**R05**
	Noise	Increase in disturbing noise levels (nuisance impact to third parties)	With reference to section 6.8, Existing noise sources within and around the project site include, natural sounds from wind, animals, and birds;vehicle movement on the adjacent gravel street road; The immediate surroundings of the project site has inhabitants of the Ondangwa Extension 3. The sensitivity of noise receptors usually increases at night when conditions are quiet, and ambient noise levels are at their lowest. However, no construction activities are anticipated at night time.	**R06**

ACTIVITY / FACILITY	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
			The related management and mitigation measures are stipulated in the EMP.	
	Waste disposal Sewerage management	Emissions to land, impact on biodiversity, environmental degradation and nuisance impacts and contamination of surface water and groundwater	Relatively small quantities of waste is anticipated to be generated during the construction phase. Waste shall be transported to the nearest waste disposal site. The related management and mitigation measures are stipulated in the EMP.	**R07**
	Visual Impacts and sense of place	Changes in visual conditions	An existing powerline runs north of the proposed project area. The area is potentially not sensitive to change in general, due to the nature of the town development and existing infrastructure. The related management and mitigation measures are stipulated in the EMP.	**R08**

8 ENVIRONMENTAL IMPACT ASSESSMENT

8.1 Assessment Approach and Methodology

Both the criteria used to assess the impacts and the Method of determining the frequency/severity of the impacts is outlined in Table 14. This Method complies with the EIA Regulations: EMA, 2007 (Government Gazette No. 4878) EIA regulations.

Both mitigated and unmitigated scenarios are considered for each impact in the EIA results.

Table 7: Assessment Methodology and Criteria

Likelihood/ Frequency	Definition	Probability	Rating	Consequence/ Severity				
				Insignificant	**Minor**	**Moderate**	**Major**	**Critical**
				Very minor or no impact.	Minor impact that can be contained	Impact may have moderate effects	Serious impact/effect	Permanent Impact/effect
				1	**2**	**3**	**4**	**5**
Very high	Almost certain Extremely likely	>90%	**5**	Low	**Medium**	High	Extreme	Extreme
				5	10	15	20	25
High	Very likely Will probably occur	60-90%	**4**	Low	**Medium**	**Medium**	High	Extreme
				4	**8**	12	16	20
Medium	Likely to happen	40-59%	**3**	**Low**	**Low**	**Medium**	**Medium**	High
				3	**6**	**9**	12	15
Low	Possible but unlikely	10-39%	**2**	**Low**	**Low**	**Medium**	Medium	**Medium**
				2	**4**	**6**	8	**10**
Very low	Conceivable but extremely unlikely	<10%	**1**	**Low**	**Low**	**Low**	**Low**	**Low**
				1	**2**	**3**	**2**	**2**

No	Potential Impact	Frequency	Severity	Without Mitigation	Control/ Mitigation	Frequency	Severity	With Mitigation
1	Potential Impact on Flora	2	1	2	◆ Any additional excavations made in the area should be backfilled.	1	1	1
2	Potential Impact on Fauna	2	1	2	◆ Only use the designated site access roads provided shall be used as practical as possible and avoid creating new tracks or access roads unnecessary;	1	1	6
3	Potential Impacts of waste generation	2	3	6	◆ Workers should be sensitized to dispose of waste responsibly and not to litter; ◆ All domestic and general operations waste produced daily should be contained until such that time it will be transported to the approved designated waste facilities; ◆ If applicable, hazardous waste should be properly handled, stored and disposed of at the nearest authorized waste sites; ◆ No waste should be buried or burned on-site or anywhere else throughout the project lifecycle; .	2	2	4
4	Potential Impacts on: ◆ Archaelogical sites	2	1	2	◆ If any archaeological material or human burials are uncovered during the course of development activities, then work in the immediate area should be halted, the find would need to be reported to the heritage authorities and may require inspection by an archaeologist.	1	1	6
5	Potential Impacts on Groundwater and Surface Water	2	3	◆ 6	◆ A no-go buffer area of at least 15 m should be allocated to any water bodies in the area. ◆ No dumping of waste products of any kind in or in close proximity to any surface water bodies. ◆ Contaminated runoff from the various operational activities should be prevented from entering any surface or ◆ ground water bodies. ◆ Ensure that surface water accumulating on-site are channeled and captured through a proper storm water ◆ management system to be treated in an appropriate manner before disposal into the environment. ◆ Disposal of waste from the various activities should be properly managed. ◆ Areas where hydrocarbons will be utilized, the surface should be covered with a plastic impermeable plastic liner to prevent the spillage on the soils and eventual infiltration into the ground. ◆ Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated during construction works. ◆ All hydrocarbon substances and other potential pollutants associated with the project activities should be contained in designated containers on site and later disposed of at	2	2	4

No	Potential Impact	Frequency	Severity	Without Mitigation	Control/ Mitigation	Frequency	Severity	With Mitigation
					nearby approved waste sites in accordance with the discharge standards. This is to ensure that these hazardous substances do not infiltrate into the ground and affect the groundwater quality. ◆ In cases of accidental fuel or oil spills on the soils from site vehicles, machinery and equipment, the polluted soil should be removed immediately and put in a designate waste type container for later disposal as per the preceding bullet point. The removed polluted soil should either be completely disposed of or cleaned and returned to where it was taken from on site or can be replaced with a cleaner soil. This is to ensure that the pollutants contained int the soil does not infiltrate into the site soils and eventually reach to groundwater. ◆ Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching groundwater bodies. The impact would be more on groundwater (aquifers) since the construction works will be done in the dry months, thus there would be no rain to trigger (polluted) runoff to surface water bodies.			
6	Noise and Air Quality	3	4	12	◆ Do not allow commercial activities that generate excessive noise levels. ◆ Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed ◆ acceptable limits. ◆ No activity having a potential noise impact should be allowed after 18:00 hours if possible.	3	2	6

9 CONCLUSIONS

It was concluded from the qualitative assessment by I.N.K that the development of the project could potentially have minimal or insignificant impacts on the environment.

Mitigation measures have been identified and recommended by I.N.K to promote the positive impacts of the project, as well as to avoid / minimise the negative impacts to acceptable levels. An EMP was further developed which identifies potential impacts of the project during the construction and operation phases. The EMP is a legally binding document, which the proponent and contractors onsite must adhere to.

I.N.K concludes that should the management actions and mitigation measures provided in the EIA and EMP report be implemented, the project would have an acceptably low significant impact on the surrounding biophysical and social environment.

References

Kangombe, F. (2010). The vegetation of Omusati and Oshana Regions, Central-Northern Namibia. University of Pretoria.

MAWF. (2006.) Cuvelai-Etosha Groundwater Investigation. Bittner Water Consult.

Namibia Statistics Agency. (2013). 2011 Population and Housing Census. Omusati Regional profile. Windhoek:

Namibia Statistics Agency.

ORC. (2006). Omusati Regional Corporate Profile. Omusati Regional Council. Republic of Namibia