



ENVIRONMENTAL MANAGEMENT PLAN (EMP)

THE PROPOSED ESTABLISHMENT OF THE NEW EXTENSION AND LAYOUT APPROVAL OF THE SUBDIVISION OF TOWNLAND; FARM NO.93 INTO PORTION 11 TOWNSHIPS AND ASSOCIATED INFRASTRUCTURE, IN USAKOS, ERONGO REGION NAMIBIA

ECC APPLICATION NUMBER: 251111006653

August 2025

Document Information

PROPONENT	USAKOS TOWN COUNCIL
PROJECT TITLE	THE PROPOSED ESTABLISHMENT OF THE NEW EXTENSION AND LAYOUT APPROVAL OF THE SUBDIVISION OF TOWNLAND; FARM NO.93 INTO PORTION 11 TOWNSHIPS AND ASSOCIATED INFRASTRUCTURE, IN USAKOS, ERONGO REGION NAMIBIA
DOCUMENT TYPE	ENVIRONMENTAL MAMAGEMENT PLAN
PROJECT LOCATION	USAKOS TOWN, ERONGO REGION
COMPETENT AUTHORITY	MINISTRY OF URBAN AND RURAL DEVELOPMENT, MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
PROJECT EAP / REVIEWER	CONTACT PERSON: MR. DAVID SHIKOYENI TOWN PLANNER
REVISION DATE	AUGIST 2025

CONTENTS

CHAPTER	DESCRIPTION	PAGE
1	INTRODUCTION	4
2	RESPONSIBILITIES	5
2.1	Employers Representative	5
2.2	Environmental Control Officer	6
2.3	Contractor	7
3	MANAGEMENT REQUIREMENTS	8
4	PLANNING AND DESIGN PHASE	9
6	CONSTRUCTION MITIGATION DETAILS	13
6.1	Section 1: Waste management	14
6.3	Section 2: Health and Safety	17
6.4	Section 3: Dust and Noise	18
6.5	Section 4: Environmental Awareness and Training	19
6.6	Section 5: Employment creation and Recruitment	19
6.7	Section 6: Stakeholder Communication	20
6.8	Section 7: Socio-economic and Miscellaneous	21
7	OPERATION AND MAINTENANCE PHASE	22
8	DECOMMISSIONING	22

LIST OF FIGURES

LIST OF TABLES

- **Table 1:** Relevant guidelines and legislated permit requirements 9
- **Table 2:** Management requirements for the Planning and Design phase 12
- **Table 3:** Construction tender preparation phase management requirements 13
- **Table 4:** Generic and site-specific environmental management actions for the construction phase 14
- **Table 5:** Operation and maintenance phase mitigation measures 22
- **Table 6:** Decommissioning phase mitigation measures 22

ABBREVIATIONS

• BID	Background Information Document
• CV	Curriculum Vitae
• DEA	Department of Environmental Affairs
• EA	Environmental Assessment
• ECC	Environmental Clearance Certificate
• EIA	Environmental Impact Assessment
• EMP	Environmental Management Plan
• GG	Government Gazette
• GN	Government Notice
• ha	Hectare
• HIV	Human Immunodeficiency Virus

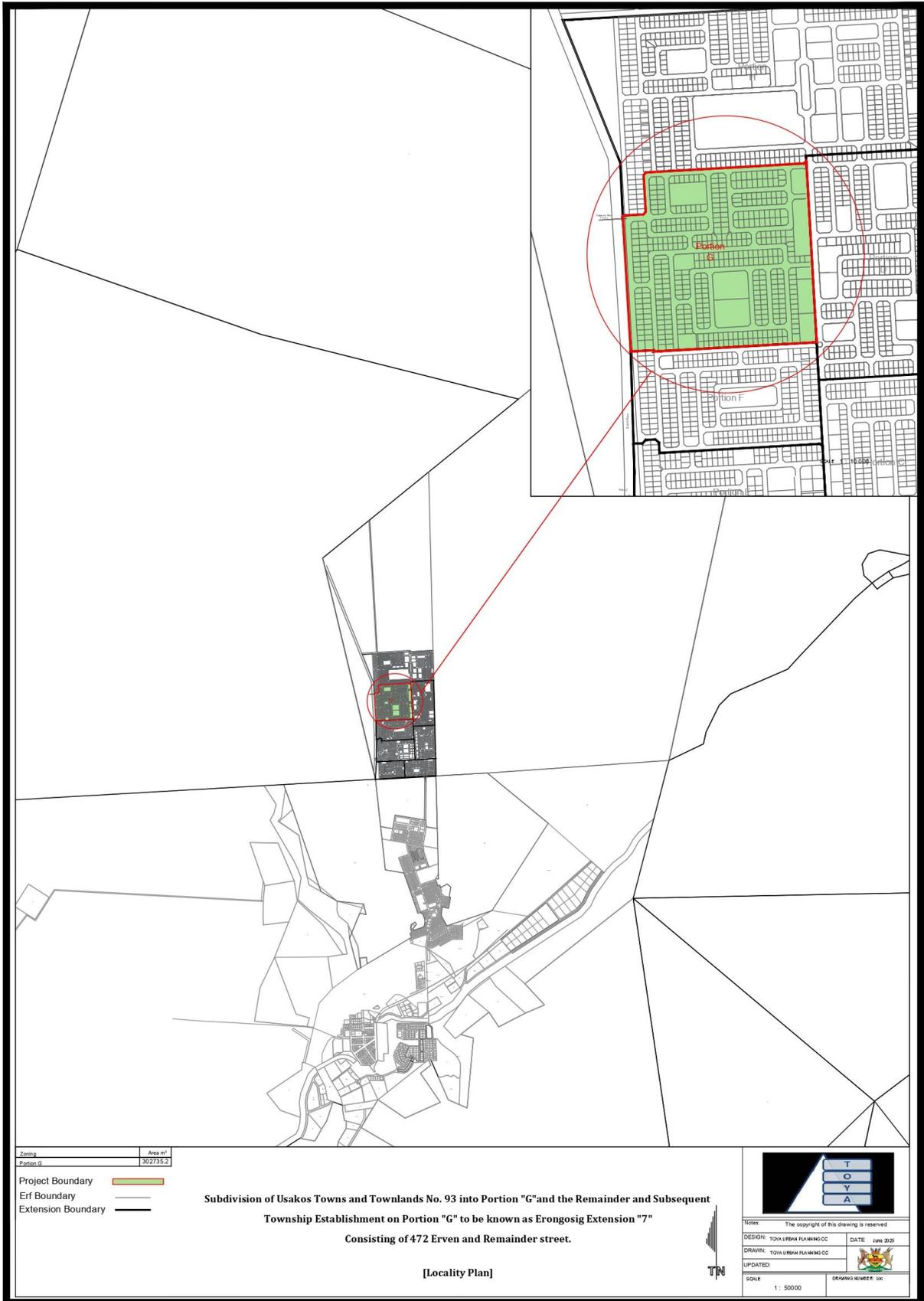
1. INTRODUCTION

As the population of Usakos continues to grow, the need for spatial expansion and improved infrastructure has become increasingly urgent. To address this demand, the Usakos Town Council (hereinafter referred to as *the Proponent* in this document) has proposed subdivision of portion of farm 93, the farmland of Usakos into new portion to be referred as extension, industrial area and other associated infrastructure within the boundaries of Usakos Townland Farm No. 93. The proposed development will offer residential, business, institutional and municipal erven in the town. Services and infrastructure that will be installed include provision of sewage, water, electricity, stormwater management and roads. This development aims to provide adequate residential, industrial, and service-related spaces to accommodate the town's projected growth and to stimulate socio-economic development in the area. This Includes development includes:

1. Subdivision of Usakos Towns and Townlands No. 93 into Portion "H" and the Remainder and Subsequent Township Establishment on Portion "H" to be known as Erongosig Extension "8" Consisting of 558 Erven and Remainder street.
2. Subdivision of the Farm Usakos Townlands Rem/ H/93/B/2 into Portion "A" and remainder and Township Establishment on Portion "A" to be known as "Usakos Extension 5 consisting 10 erven "
3. Township Establishment on Erf H/40/A/REM Comprising of 33 Erven and remainder street to be known as "Indus East"
4. Permanent Closure of Public Open Space and Rezoning of Erf "1" ,Hakaseb From Public Open Space to Undetermined and Subsequent Township Establishment consisting of 122 Erven and remainder street to be known as Extension "6"
5. Subdivision of Usakos Towns and Townlands No. 93 into Portion "A" and the Remainder and Subsequent Township Establishment on Portion "A" to be known as Erongosig Extension "1" Consisting of 196 Erven and Remainder street.
6. Subdivision of Usakos Towns and Townlands No. 93 into Portion "B" and the Remainder and Subsequent Township Establishment on Portion "B" to be known as Erongosig Extension "2" Consisting of 213 Erven and Remainder street.
7. Subdivision of the Remainder of Usakos Towns and Townlands No. 93 into Portion "C" and the remainder and Subsequent Township Establishment on Portion "C" to be known as Erongosig Extension "3" Consisting of 236 Erven and remainder street.

8. Subdivision of the Remainder of Usakos Towns and Townlands No. 93 into Portion "D" and the remainder and Subsequent Township Establishment on Portion "D" to be known as Erongosig Extension "4" Consisting of 320 Erven and remainder street.
9. Subdivision of Remainder Usakos Town and Townlands No. 93 into Portion "E" and the remainder and Subsequent Township Establishment on Portion "E" to be known as Erongosig Extension "5" Consisting of 224 Erven and Remainder Street.
10. Subdivision of Remainder Usakos Town and Townlands No. 93 into Portion "F" and the remainder and Subsequent Township Establishment on Portion "F" to be known as Erongosig Extension "6" Consisting of 293 Erven and Remainder Street.
11. Subdivision of Usakos Towns and Townlands No. 93 into Portion "G" and the Remainder and Subsequent Township Establishment on Portion "G" to be known as Erongosig Extension "7" Consisting of 472 Erven and Remainder street.

The Usakos Town Council has appointed Savannah Environmental Consultant Services CC to carry out an Environmental & Social Impact Assessment or Statement and undertake the necessary activities to enable an application for an Environmental Clearance Certificate (ECC) with the Environmental Commissioner (EC) as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).



Zoning	Area (m ²)
Portion G	302735.2

- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of Usakos Towns and Townlands No. 93 into Portion "G" and the Remainder and Subsequent Township Establishment on Portion "G" to be known as Erongosig Extension "7"
Consisting of 472 Erven and Remainder street.

[Locality Plan]

Notes: The copyright of this drawing is reserved

DESIGN: TOYA URBAN PLANNING CC DATE: June 2020

DRAWN: TOYA URBAN PLANNING CC

UPDATED:

SCALE: 1:50000 DRAWING NUMBER: 100



Zoning	Area (m ²)
Portion A	1175000,8

- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of Usakos Towns and Townlands No. 93 into Portion "A" and the Remainder and Subsequent Township Establishment on Portion "A" to be known as Erongosig Extension "1" Consisting of 196 Erven and Remainder street.

[Locality Plan]



Notes: The copyright of this drawing is reserved.	
DESIGN: TOVA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOVA URBAN PLANNING CC	
UPDATED:	
SCALE: 1:50000	DRAWING NUMBER: 101





Zone	Area No.
Portion B	1254323

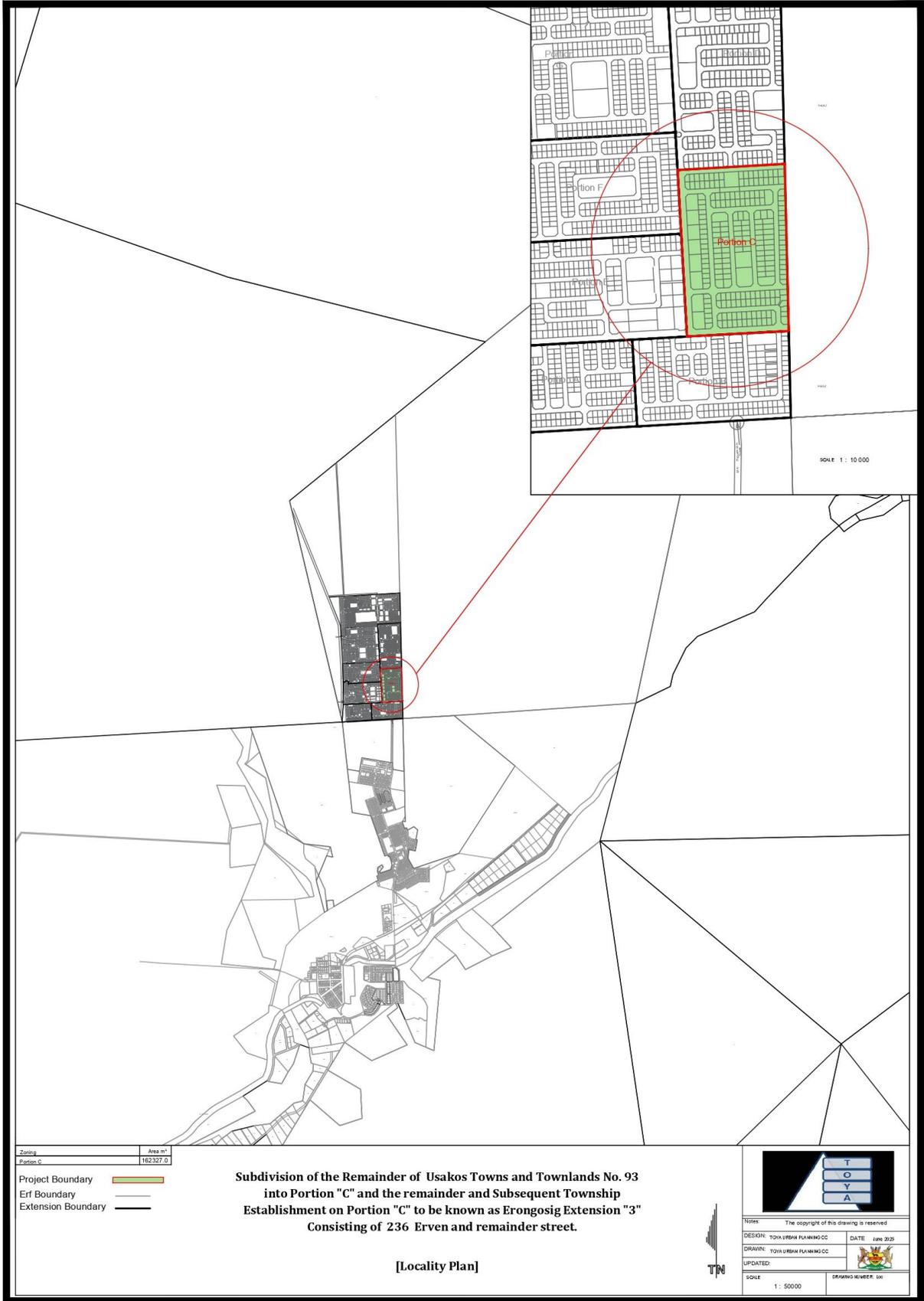
- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of Usakos Towns and Townlands No. 93 into Portion "B" and the Remainder and Subsequent Township Establishment on Portion "B" to be known as Erongosig Extension "2" Consisting of 213 Erven and Remainder street.

[Locality Plan]



Notes: The copyright of this drawing is reserved.	
DESIGN: TOYA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOYA URBAN PLANNING CC	
UPDATED:	
SCALE: 1: 50000	DRAWING NUMBER: 101



Zoning	Area (m ²)
Portion C	162327,0

- Project Boundary
- Erf Boundary
- Extension Boundary

**Subdivision of the Remainder of Usakos Towns and Townlands No. 93
into Portion "C" and the remainder and Subsequent Township
Establishment on Portion "C" to be known as Erongosig Extension "3"
Consisting of 236 Erven and remainder street.**

[Locality Plan]



Notes: The copyright of this drawing is reserved.	
DESIGN: TOVA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOVA URBAN PLANNING CC	
UPDATED:	
SCALE: 1: 50000	DRAWING NUMBER: 100





Zone	Area (m ²)
Portion D	231783.7

- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of the Remainder of Usakos Towns and Townlands No. 93 into Portion "D" and the remainder and Subsequent Township Establishment on Portion "D" to be known as Erongosig Extension "4" Consisting of 320 Erven and remainder street.

[Locality Plan]



Notes: The copyright of this drawing is reserved.	
DESIGN: TOYA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOYA URBAN PLANNING CC	
UPDATED:	
SCALE: 1: 50000	DRAWING NUMBER: 100



Zone	Area (m ²)
Portion E	186438.0

- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of Remainder Usakos Town and Townlands No. 93 into Portion "E" and the remainder and Subsequent Township Establishment on Portion "E" to be known as Erongosig Extension "5" Consisting of 224 Erven and Remainder Street.

[Locality Plan]

	
Notes: The copyright of this drawing is reserved	
DESIGN: TOYA URBAN PLANNING CC	DATE: June 2025
DRAWN: TOYA URBAN PLANNING CC	
UPDATED:	
SCALE: 1 : 50000	DRAWING NUMBER: 101



Zone	Area (m ²)
Portion H	475816.75

- Project Boundary
- Erf Boundary
- Extension Boundary

Subdivision of Usakos Towns and Townlands No. 93 into Portion "H" and the Remainder and Subsequent Township Establishment on Portion "H" to be known as Erongosig Extension "8" Consisting of 558 Erven and Remainder street.

[Locality Plan]



Notes: The copyright of this drawing is reserved	
DESIGN: TOVA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOVA URBAN PLANNING CC	
UPDATED:	
SCALE: 1 : 50000	DRAWING NUMBER: 101



Zone	Area (m ²)
Portion F	175588,3

- Project Boundary
- Erf Boundary
- Extension Boundary

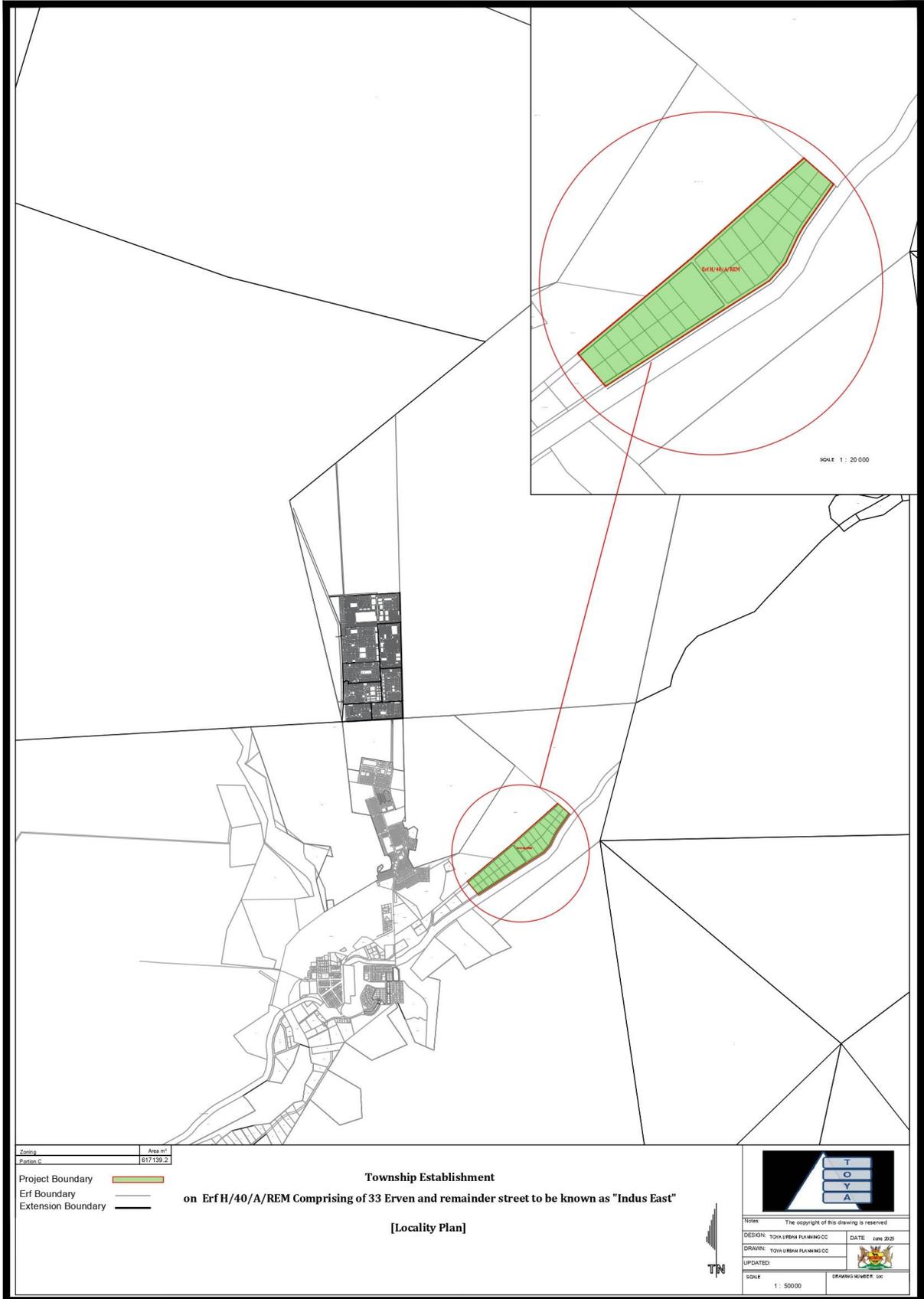
Subdivision of Remainder Usakos Town and Townlands No. 93 into Portion "F" and the remainder and Subsequent Township Establishment on Portion "F" to be known as Erongosig Extension "6" Consisting of 293 Erven and Remainder Street.

[Locality Plan]



Notes: The copyright of this drawing is reserved.	
DESIGN: TOVA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOVA URBAN PLANNING CC	
UPDATED:	
SCALE: 1: 50000	DRAWING NUMBER: 100







-  Portion A Boundary
-  Erf Boundary
-  2m Cable Servitude
-  30m Road Servitude
-  B2 Center Line
-  Contour

**Subdivision of the Farm Usakos Townlands Rem/ H/93/B/2
into Portion "A" and remainder and Township Establishment on Portion
"A" to be known as "Usakos Extension 5 consisting 10 erven".**

[Locality Plan]

	
Notes: The copyright of this drawing is reserved	
DESIGN: TOYA URBAN PLANNING CC	DATE: June 2020
DRAWN: TOYA URBAN PLANNING CC	
UPDATED:	
SCALE: 1:50000	DRAWING NUMBER: TNHRP/20

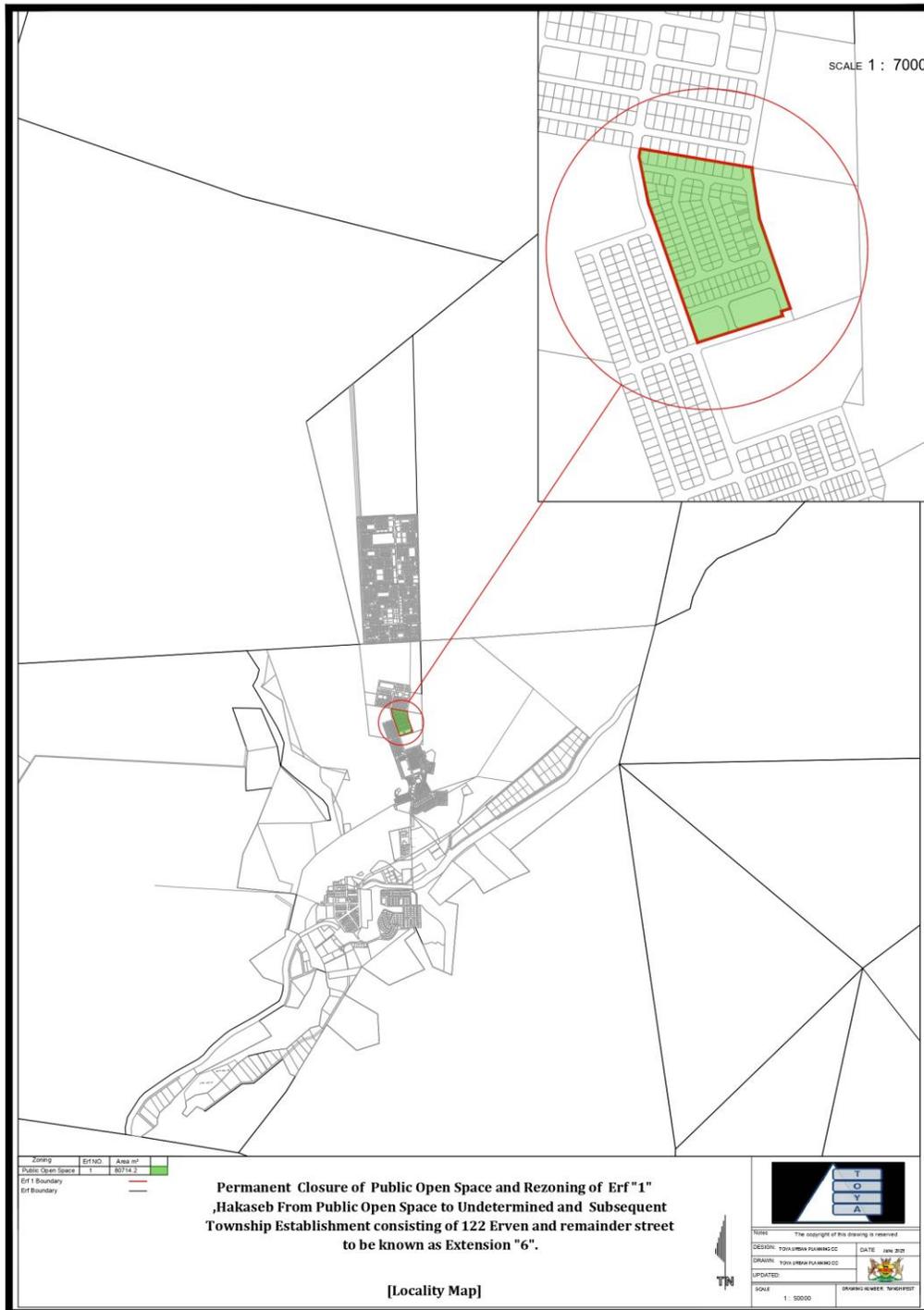


Figure 1 locality map of the proposed development

This document details the Environmental Management Plan (EMP) as informed by the Environmental Impact Assessment (EIA) conducted as per the Environmental Management Act (7 of 2007).

An EMP is one of the most important products of an Environmental Assessment (EA) process. An EMP synthesises all recommended mitigation and monitoring measures, laid out according to the various stages of a project life cycle, with clearly defined follow-up actions and responsibility assigned to specific actors. This EMP is a legally binding document and has been drafted in accordance with the Namibian Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations (2012).

This plan describes the mitigation and monitoring measures to be implemented during the following phases of these developments:

- ❖ **Planning and Design** – the period, prior to the drafting of construction tender documents, during which preliminary legislative and administrative arrangements, necessary before any erven are sold, are made and detailed engineering designs/drawings are carried out;
- ❖ **Construction** – the period during which the services infrastructure will be constructed
- ❖ **Operation and Maintenance** – the period during which the services infrastructure will be fully functional and maintained by the proponent.

Decommissioning and rehabilitation is not envisaged for these developments. However, in the event that this is deemed necessary, decommissioning and rehabilitation mitigation measures have been provided (see Table 6).

The commitments described here form part of the Environmental Clearance Certificate (ECC) between the developer and the state, as represented by the Ministry of Environment and Tourism (MET). Non-compliance is considered illegal and may have legal consequences. The amendment, transfer or renewal of the ECC should be communicated to the Environmental Commissioner as stipulated in the Environmental Management Act (EMA) of 2007 (S 39-42) and its EIA Regulations (S 19-20). Any changes to this EMP will require an amendment to the ECC for these developments.

2. RESPONSIBILITIES

The responsibility for the implementation of the EMP ultimately lies with the developer, who is also responsible for the eventual operation of these developments. The implementation of this EMP requires the involvement of several key individuals, each fulfilling a different but vital role to ensure sound environmental management during each phase of these developments.

The Developer should appoint an Employer's Representative (ER) to oversee all aspects of these developments for all development phases (including all contracts for work outsourced). The Developer may decide to assign this role to one person for the full duration of these developments, or may assign an ER to each of the development phases – i.e. one for the Planning and Design Phase, one for the Construction Phase and one for the Operational and Maintenance Phase. The ER will in turn appoint an Environmental Control Officer (ECO) to oversee the implementation of the whole EMP during the Construction and Operation and Maintenance Phases. Again, the ER (and/or the Developer) may decide to assign this role to one person for both phases, or may assign a different ECO for each phase – i.e. one for the Construction Phase and another for the Operation and Maintenance Phase. The following positions and their respective responsibilities are outlined below:

- Employer's Representative;
- Environmental Control Officer; and
- Contractor (Servicing, Construction and Operations and Maintenance).

2.1 EMPLOYER'S REPRESENTATIVE

The ER is appointed by the Developer to manage all contracts for work/services that are outsourced during all development phases. Any official communication regarding work agreements is delivered through this person. The ER should with the commencement of the project appoint a competent ECO who will represent the Developer on-site.

During the Planning and Design and Construction Tender Preparation Phase, the ER will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorisations have been obtained (see Table 1);
- Developing, managing implementation of and maintaining all Development Guideline;
- Ensure that the management requirements included in Table 3 inform the planning and design of the relevant infrastructure developments (i.e. that these requirements are considered during the Planning and Design Phase not as an afterthought); and
- Ensure that the management requirements included in Table 4 inform the preparation of tender documents for the construction of the relevant infrastructure developments.

During the Construction and Operation and Maintenance Phases the ER shall assist the ECO where necessary and will have the following responsibilities regarding the implementation of this EMP:

- Ensuring that the necessary legal authorisations and permits (see Table 1) have been obtained by the Contractor;
- Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary;
- Ordering the removal of individuals and/or equipment not complying with the EMP;
- Issuing fines for transgression of site rules and penalties for contravention of the EMP; and
- Providing input into the ECO's ongoing internal review of the EMP. This review report should be submitted on a monthly basis to the Developer.

2.2 ENVIRONMENTAL CONTROL OFFICER

The ECO should be a competent person appointed by the ER. The ECO is the Developer's on-site representative primarily responsible for the monitoring and review of on-site environmental management and implementation of the EMP by the Contractor. If no ECO is appointed the duties of the ECO fall upon the ER.

During the Construction Phase and Operation and Maintenance Phase the ECO's duties include the following:

- Assisting the ER in ensuring that the necessary legal authorisations have been obtained;
- Maintaining open and direct lines of communication between the ER, Developer, the Construction and/or Operations and Maintenance Contractor, and Interested and Affected Parties (I&APs) with regard to this EMP and matters incidental thereto;
- Monthly site inspection of all construction and/or infrastructure maintenance areas with regard to compliance with this EMP;
- Monitor and verify adherence to the EMP (audit the implementation of the EMP) and verify that environmental impacts are kept to a minimum;
- Taking appropriate action if the specifications of the EMP are not adhered to;
- Assisting the Contractor in finding environmentally responsible solutions to problems;
- Advising on the removal of person(s) and/or equipment not complying with the specifications of the EMP in consultation with the ER;
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to the document.

2.3 CONTRACTOR

The Contractor is responsible for the implementation of the EMP, on-site monitoring and evaluation of the EMP. It is envisaged that various contractors might be appointed at various periods for various tasks throughout the life cycle (servicing of the land , construction through to decommissioning phase) of this project. These can be broadly grouped into Construction Contractors and Operations and Maintenance Contractors. In order to ensure sound environmental management, the relevant sections of this EMP should be included in all contracts of work outsourced thus legally binding all appointed contractors and sub-contractors. All contractors shall ensure that adequate environmental awareness training (see Section E) of senior site personnel

takes place and that all construction workers and newcomers receive an induction presentation on the importance and implications of the EMP. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

The Contractor should keep records of all environmental training sessions, including names, dates and the information presented.

3. MANAGEMENT REQUIREMENTS

This EMP has been structured so as to provide its various intended recipients (Developer, ER, consulting engineers and contractors) with mitigation measures immediately applicable to their respective scopes of work. The management requirements for the various recipients carrying out work for this project are divided according to the main project phases:

- Permit and relevant legal requirements (Table 1);
- Development Guidelines (Table 2);
- Planning and Design Phase requirements (Table 3);
- Construction Phase mitigation requirements (Table 5); and
- Operation and Maintenance Phase mitigation requirements (Table 6).

THEME	LEGISLATION INSTRUMENT	MANAGEMENT REQUIREMENTS	CONTACT PERSON
Environmental	Environmental Management Act (EMA) 7 of 2007 EIA Regulations (EIAR) (GN) No.	The amendment, transfer or renewal of the Environmental Clearance Certificate (ECC) (EMA S39-42;	Ms. Saima Angula Tel: 061 284 2751

	28/2007 (GG No. 4878)	EIAR S19 & 20). Amendments to this EMP will require an amendment of the ECC for these developments.	
	“List of activities that may not be undertaken without ECC” GG No. 4878 GN No. 29	Any activities listed in this listing notice require an ECC and hence an Environmental Assessment.	
Labour	Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	Labour Law Advice: Tel: 061 309 957
Roads	Roads Ordinance 17	<ul style="list-style-type: none"> • Width of proclaimed roads and road reserve boundaries (S3.1) • Control of traffic on urban trunk and main roads (S27.1) • Rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads (S36.1) • Infringements and obstructions on 	Mr E. de Paauw Tel: (061) 284 7027

		<p>and interference with proclaimed roads. (S37.1)</p> <ul style="list-style-type: none"> Distance from proclaimed roads at which fences are erected (S38). 	
Water	Water Act 54 of 1956	Section 21 details provisions relating to effluent discharge permits.	Mr. Witbooi (MWAFF): Tel: (061) 208 7226
	Water Quality Guidelines for Drinking Water and Waste Water Treatment	Details specific quantities in terms of water quality determinants, which waste water should be treated to before being discharged into the environment (see Appendix B).	

Table 1: Relevant guidelines and legislated permit requirements

4. PLANNING AND DESIGN PHASE

The management requirements detailed in the table below need to be carried out before any tender documents are drafted for the construction of services infrastructure while necessary preliminary legislative and administrative arrangements are made in preparation for the occupation of residential units. These management requirements are also applicable for the period during which engineering designs/drawings are carried out.

ASPECT	MANAGEMENT REQUIREMENT
Solid waste management	The proponent will use the existing landfill site in Usakos and the existing measures should be taken in consideration as to how to dispose off solid waste
Sewage reticulation	<ul style="list-style-type: none">• Sewer pipes should avoid crossing water bodies. Where this is not possible the design should comply with the South African Bureau of Standards 1200 for sewer pipe designs.• Water reclamation should be investigated and if feasible and practical incorporated into the new design of the sewerage system.
Potable water infrastructure	Equipment considered during the design of new infrastructure (e.g. water meters) must be readily available
Biodiversity and Aesthetics	All trees (a “tree” is defined as an indigenous woody perennial plant with a trunk diameter ≥ 150 mm) that occur within the subdivisions and townships, which have not been officially surveyed by a registered land

	<p>surveyor, should be surveyed and incorporated into the Geographic Information System (GIS). In this way these trees will form part of the Town Planning Scheme and their preservation can thus receive legal force. Clear signage post indicating permanent closure of open public place shall be erected.</p>
Road infrastructure	<p>The following should be adhered to with respect to any development near Roads Authority declared roads:</p> <ul style="list-style-type: none"> • There is a 45 metre building restriction applicable along Trunk Road 0701, measured from the centerline of the road. • The road reserve width is 60 metres (measured 30 metres to each side of the centerline of the trunk road). • The 15 metre wide area between the road reserve line and the building restriction line needs to be declared as public open space. • The accesses onto the trunk road will need to be designed and constructed to the standards and specifications of the Roads Authority, at no cost to the Roads Authority, and detail drawings will first need to be submitted to the Roads Authority for approval before construction work may begin.
Maintenance of services infrastructure	<p>Ensure that a sufficient number of qualified staff are appointed to cater for increased demand for infrastructure maintenance upon completion of construction of such services.</p>
EMP Implementation	<p>The developer needs to appoint an Employer’s Representative (ER) (or assign the role to an existing Town Council staff member) that will act as the developer’s on-site implementing agent. This person should be responsible to ensure that the developer’s responsibilities are executed in compliance with relevant legislation and this EMP.</p>

Table 2: Management requirements for the Planning and Design phase

5. CONSTRUCTION MITIGATION DETAILS

The following table provides a large scale overview of all the major environmental management themes pertaining to both generic and site specific construction mitigation details. This table serves to act as quick reference, for the detailed mitigation details that follow below, for the implementation of the construction component of this EMP. This chapter may be used as a guide when developing EMPs for other construction activities within the development areas in question.

MITIGATION ISSUE	OBJECTIVE TO BE ATTAINED	GENERIC MITIGATION DETAILS
Waste Management	Avoid and where not possible minimise all pollution associated with construction.	Section 1
Health and Safety	Safeguard health and safety of labourers and general public.	Section 2
Dust and Noise	Avoid and where not possible minimise dust and noise associated with construction.	Section 3
Environmental Awareness	Awareness creation regarding the	Section 4

MITIGATION ISSUE	OBJECTIVE TO BE ATTAINED	GENERIC MITIGATION DETAILS
and Training	provisions of the EMP as well as importance of safeguarding environmental resources.	
Employment Creation and Recruitment	Minimise negative conflict through legal and fair recruitment practices.	Section 5
Stakeholder Communication	Provide a platform for stakeholders to raise grievances and receive feedback and hence minimise negative conflict	Section 6
Socio-economic and Miscellaneous	Ensure due consideration is given to matters regarding the cultural and general wellbeing of the affected community and matters incidental thereto.	Section 7

Table 3: Generic and site-specific environmental management actions for the construction phase

6.1 SECTION 1: WASTE MANAGEMENT

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Waste management plan	The Contractor should compile a Waste Management Plan which should address as a minimum the mitigation measures included below.
Hazardous waste	<ul style="list-style-type: none"> All heavy construction vehicles and equipment on site should be provided with a drip tray. Drip trays are to be transported with vehicles wherever they go.

	<ul style="list-style-type: none"> • Drip trays should be cleaned daily and spillage handled, stored and disposed of as hazardous waste. • All heavy construction vehicles should be maintained regularly to prevent oil leakages. • Maintenance and washing of construction vehicles should be take place only at a designated workshop area. • The workshop area should be lined with concrete and sloped so as to collect and detain all run-off. • The workshop should have an oil-water separator for collected run-off from washing. • Spilled cement and/or concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. • All hazardous substances (e.g. fuel etc.) or chemicals should be stored in a specific location on an impermeable surface that is bunded.
Sewage and grey water	<p>The water collected from wash basins and showers (grey water), should not be left standing for long periods of time as this promotes parasite and bacterial proliferation. Grey water should be recycled:</p> <ul style="list-style-type: none"> • Used for dust suppression; • Used to water a vegetable garden, or to support a small nursery; • Used to clean equipment. • Grey water that is not recycled should be removed along with sewage on a regular basis.
General waste	<ul style="list-style-type: none"> • The construction site should be kept tidy at all times. All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. • No waste may be buried or burned. • Waste containers (bins) should be emptied regularly and removed from site to a recognized (municipal) waste disposal site. All recyclable waste needs to be taken to the nearest recycling depot. • A sufficient number of separate bins for hazardous and

	<p>domestic/general waste must be provided on site. These should be clearly marked as such.</p> <ul style="list-style-type: none"> • Construction labourers should be sensitized to dispose of waste in a responsible manner and not to litter. • No waste may remain on site after the completion of the project
--	---

6.3 SECTION 2: HEALTH AND SAFETY

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Road Safety	<ul style="list-style-type: none"> • Off-road driving should not be allowed. • All vehicles that transport materials to and from the site must be roadworthy. • Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules.
Safety Around Excavated and Work Areas	<ul style="list-style-type: none"> • Excavations should be left open for shortest time possible. • Excavate short lengths of trenches and box areas for services or foundations in such a way that the trench will not be left unattended for more than 24 hours. • The following areas should be demarcated with danger tape: <ul style="list-style-type: none"> ○ All excavation works; ○ Soil and other building material stockpiles; and ○ Temporary waste stockpiles. • Provide additional warning signage in areas of movement and in "no personnel" areas where workers are not active. • Borrow pits are to be fenced-off with steel wire fencing. • Work areas must be set out and isolated with danger tape on a daily basis. • All building materials and equipment are to be stored only within set out and demarcated work areas. • Only construction personnel will be allowed within these work areas.

	<ul style="list-style-type: none"> • 2 fire extinguishers should be available at fuel storage areas. • Comply with all mitigation measures laid out in Section 1 (Waste Management mitigation details)
Ablutions	<ul style="list-style-type: none"> • Separate toilets should be available for men and women and should clearly be indicated as such. • Portable toilets (i.e. easily transportable) should be available at the construction site. • Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site. Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. • Workers responsible for cleaning the toilets should be provided with latex gloves and masks.
General	<ul style="list-style-type: none"> • Dust protection masks should be provided to workers if they complain about dust. • Sufficient potable water reserves should be available to workers at all times. • No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable). • No workers should be allowed to drink alcohol during work hours. • No workers should be allowed on site if under the influence of alcohol. • Clear signage indicating permanent closure of public open places shall be erected.

6.4 SECTION 3: DUST AND NOISE

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Dust	A watering truck should be used on gravel roads with the most heavy vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions

	during times of drought.
Noise	Work hours should be restricted to between 08h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week's written notice.

6.5 SECTION 4: ENVIRONMENTAL AWARENESS AND TRAINING

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Environmental Induction (Training)	<p>All construction workers are to undergo environmental induction (training) which should include as a minimum the following:</p> <ul style="list-style-type: none"> • Explanation of the importance of complying with the EMP. • Discussion of the potential environmental impacts of construction activities. • Employees' roles and responsibilities, including emergency preparedness. • Explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities. • Explanation of the specific mitigation measures within this EMP especially unfamiliar provisions.

6.6 SECTION 5: EMPLOYMENT CREATION AND RECRUITMENT

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Legislation	Adhere to the legal provisions in the Labour Act (see Table 1) for the recruitment of labour (target percentages for gender balance, optimal

	use of local labour and SME's, etc.) in the Contract.
Recruitment	<p>The Contractor should compile a formal recruitment process including the following provisions as a minimum:</p> <ul style="list-style-type: none"> • Recruitment should not take place at construction sites. • Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside the agreed upon process. • Contractors should give preference in terms of recruitment of sub-contractors and individual labourers to those who are qualified and from the project area and only then look to surrounding towns. • Clearly explain to all job-seekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary.

6.7 SECTION 6: STAKEHOLDER COMMUNICATION

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
Communication Plan	<p>The Contractor or appointed private property developer (if applicable) should draft a Communication Plan, which should outline as a minimum the following:</p> <ul style="list-style-type: none"> • How Interested and Affected Parties (I&APs), who require ongoing communication for the duration of the construction period, will be identified and recorded and who will manage and update these records; • How these I&APs will be consulted on an ongoing basis; • Make provision for grievance mechanisms – i.e. how concerns can be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event that feedback is deemed unsatisfactory.

<p>General communication matters</p>	<ul style="list-style-type: none"> • The ER in collaboration with the appointed private property developer (if applicable) must appoint an ECO to liaise between the Contractor, I&APs, Developer, and consultants. • The Contractor shall at every monthly site meeting report on the status of the implementation of all provisions of the EMP. • The Contractor should implement the environmental awareness training as stipulated in Section 5 (see above). • The Contractor must list the I&APs of the project and their contact details with whom ongoing communication would be required for duration of the contract. This list, together with the Communication Plan must be agreed upon and given to the ER before construction commences. • The Communication Plan, once agreed upon by the Developer, shall be legally binding. • All communication with the I&APs must take place through the ECO. • A copy of the EMP must be available at the site office and should be accessible to all I&APs • Key representatives from the above mentioned list need to be invited to attend monthly site meetings to raise any concerns and issues regarding project progress. • The Contractor should liaise with the Developer regarding all issues related to community consultation and negotiation before construction commences. • A procedure should be put in place to ensure that concerns raised have been followed-up and addressed. • All people on the I&APs list should be informed about the availability of the complaints register and associated grievance mechanisms in writing by the ER prior to the commencement of construction activities.
---	---

6.8 SECTION 7: SOCIO-ECONOMIC AND MISCELLANEOUS

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
-------------------	----------------------------

<p>Archaeology</p>	<p>Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a “chance find” procedure should be applied in the order they appear below:</p> <ul style="list-style-type: none"> • If operating machinery or equipment stop work; • Demarcate the site with danger tape; • Determine GPS position if possible; • Report findings to the construction foreman; • Report findings, site location and actions taken to superintendent; • Cease any works in immediate vicinity; • Visit site and determine whether work can proceed without damage to findings; • Determine and demarcate exclusion boundary; • Site location and details to be added to the project’s Geographic Information System (GIS) for field confirmation by archaeologist; • Inspect site and confirm addition to project GIS; • Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and • Recovery, packaging and labelling of findings for transfer to National Museum. • Should human remains be found, the following actions will be required: <ul style="list-style-type: none"> ○ Apply the chance find procedure as described above; ○ Schedule a field inspection with an archaeologist to confirm that remains are human; ○ Advise and liaise with the NHC and Police; and ○ Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.
---------------------------	---

6. OPERATION AND MAINTENANCE PHASE

The following mitigation measures should be complied with and carried out during any maintenance works associated with the services infrastructure within the planned development areas.

MITIGATION ASPECT	PROPOSED MITIGATION ACTION
<ul style="list-style-type: none"> • EMP implementation 	If any construction is to be conducted as part of maintenance works for the services infrastructure within the project area please refer to the construction mitigation measures of this EMP (Chapter 7).
<ul style="list-style-type: none"> • Post-construction environmental training and awareness 	All contractors appointed for maintenance work on the respective services infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.
<ul style="list-style-type: none"> • Property development 	The Property Development EMP should be included as part of the title deed

Table 4: Operation and maintenance phase mitigation measures

7. DECOMMISSIONING

The permanent closure of these developments is not envisaged. However, in the event that they are decommissioned the following mitigation measures should be adhered to.

ASPECT	MITIGATION MEASURE
--------	--------------------

Construction related activities	Many of the mitigation measures prescribed for construction activity for these developments (Chapter 7 above) would be applicable to some of the decommissioning activities. These should be adhered to where applicable.
Rehabilitation	In the event that decommissioning is deemed necessary, excavations need to be rehabilitated according to Section B of Chapter 7 (see above).

Table 5: Decommissioning phase mitigation measures

8 CONCLUSIONS

The management actions included in this report aim to assist in the avoidance, management and/or mitigation of potential impacts on the environment that may result from the proposed activities. Should the measures recommend in this EMP be implemented and monitored, Savannah Environmental Consultant Services CC is confident that the risks identified in the ESA can be reduced to acceptable levels. Thus the consultant is confident enough that the Environmental commissioner must grant the environmental Clearance Certificate