



Draft Environmental Management Programme

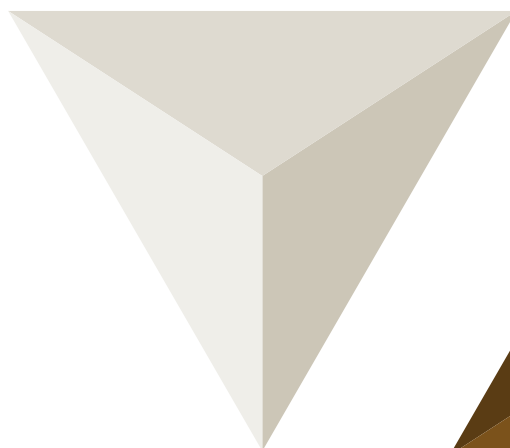
STEENBRAS WATER TREATMENT PLANT (WTP) ACCESS ROAD REPAIR

City of Cape Town

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EMPR: Steenbras WTP Access Road Repair

Proponent: City of Cape Town

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	Helderberg Government Hospital	021 850 4700
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	Fire Department	021 444 7600 (Strand)
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	Department of Environmental Affairs and Development Planning (DEA&DP)	021 483 2707

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Abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CoCT	City of Cape Town
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	National Department of Forestry Fisheries and the Environment
DWS	The Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
ESO	Environmental Site Officer
GA	General Authorisation
GN	Government Notice
MS	Method Statement
NEMA	National Environmental Management Act (No. 107 of 1998)
NFA	National Forest Act
NWA	The National Water Act
PPP	Public Participation Plan
SCC	Species of Conservation Concern
SE	Site Engineer
WTP	Water Treatment Plant
WULA	Water Use Licence Authorisation

1 BACKGROUND INFORMATION AND OVERVIEW

1.1 Introduction

The City of Cape Town (henceforth referred to as “CoCT”) proposes the repair of a damaged section of the Steenbras Water Treatment Plant (WTP) Access Road also referred to as “Slope 1” in Steenbras, Western Cape. Zutari (Pty) Ltd (Zutari) was appointed by the CoCT as the Independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment Process to obtain Environmental Authorisation (EA) for the proposed repair work on Slope 1.

In terms of Section 28 (1) of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”. For this reason, every person who intends to undertake an activity which could potentially have a negative impact on the environment should take reasonable steps to implement mitigation measures to prevent such impacts during those activities.

The CoCT aims to ensure that the proposed project will be undertaken in an environmentally responsible manner. This Environmental Management Programme (EMPr) is intended to ensure compliance with the principles of sound Environmental Management and the general “Duty of Care” specified in the NEMA, so as to avoid or minimise potential negative impacts on the natural environment during the construction phase.

1.2 Site Description and Locality

Slope 1 of the Steenbras WTP Access Road is located the Western Cape, above Gordon’s Bay, on the slopes Hottentots-Holland Mountains Figure 1. The site is located on Erf RE/933, which is located between R44 and the Nature Reserve-Steenbras Water Treatment Plant. Access to the WTP Slope 1 is along a bitumen surfaced road off the R44 to the west of Gordon’s Bay.



Figure 1: Locality Map of Slope 1, Steenbras WTP Access Road Repair

1.3 Proposed Works

To address the slope damage and restore safe and reliable access to the Steenbras WTP and the public access to the Steenbras viewpoint; two slope stabilisation options have been considered for the repair and rehabilitation of Slope 1: (i) An Anchored gabion wall and (ii) Terramesh retaining wall. The purpose of assessing these options is to identify the preferred option, based on comparative environmental performance and technical feasibility for the site conditions and the nature of the required repairs of Slope 1. The erosion protection structure will be approximately 6500m².

1.3.1.1 Preferred Alternative: Anchored Gabion Wall

This option involves a gabion wall founded 5 m from the road edge. To stabilize the wall on the steep slope, 25 mm to 32 mm steel anchors are to be installed, extending 6 m to 9 m into the underlying rock. Minimal disturbance to the existing road is expected and limited backfill will be required behind the wall. The gabion baskets can either be left exposed with a hand-placed stone finish or be grouted to achieve a solid concrete-like appearance. The wall is expected to be approximately 5 m high based on the ground profile at the time of the investigation. This option is considered because of its natural integration with the surrounding environment and that allows for permeability and vegetation growth over time.

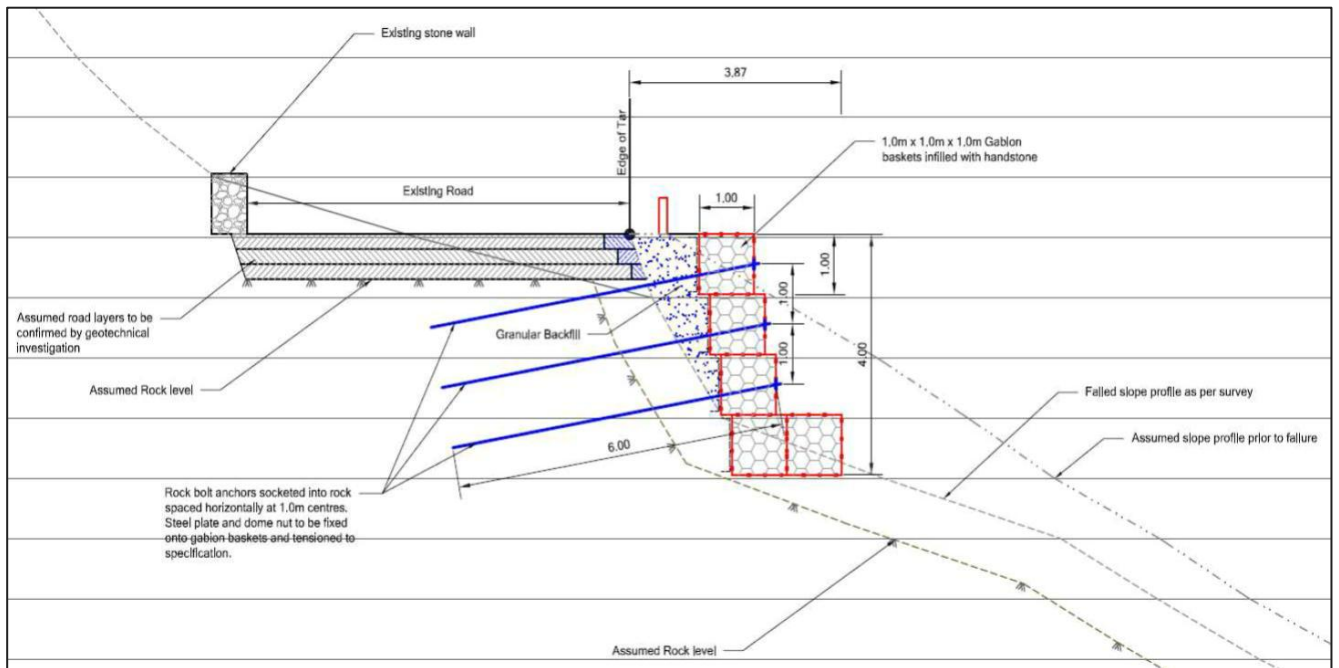


Figure 2: Anchored gabion wall concept (Ingerop, 2024)

1.3.2 Alternative 1: Terramesh Retaining Wall

This option involves using Terramesh baskets to build a retaining structure along the road edge. Terramesh baskets typically provide increased stability when compared with traditional gabion baskets due to the welded tail reinforcement. A portion of the existing roadway will need to be demolished to bench the 2 m long reinforcement tail into the slope, requiring lateral support to prevent destabilisation of the road. Excavation will pass through the talus under burden and proper shoring will be necessary. The final height of the Terramesh wall is expected to be between 4 m and 5 m based on the ground profile at the time of the investigation.

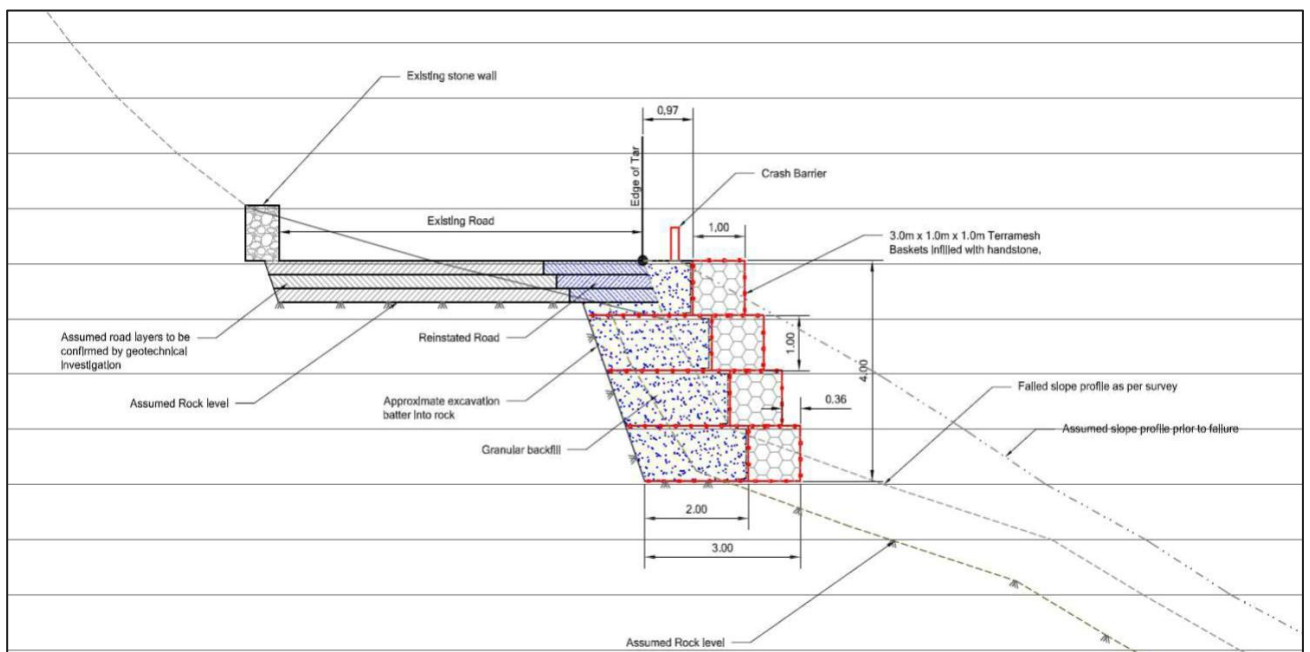


Figure 3: Terramesh retaining wall concept (Ingerop, 2024)

Based on the site conditions and constraints, the Anchored gabion wall has been identified as the preferred alternative for the rehabilitation and repair of slope 1.

2 PURPOSE OF THE EMPr

The EMPr has been included as an appendix to the Basic Assessment Report (BAR) to provide a link between the impacts identified in the Basic Assessment Process (undertaken in terms of the Environmental Assessment (EIA) Regulations (Government Notice no. R. 982 of 2014) and the actual environmental management on the ground during project implementation and operation. It is highly unlikely that the Road would be decommissioned in future, and as such, this EMPr does not include mitigation measures relating to decommissioning. The purpose of this document is to provide for environmental management throughout the various life-cycle stages of the proposed development, including:

- Planning and design;
- Pre-construction and construction; and
- Operation.

The EMPr is a working document which the proponent (the holder of the EA for the project, if granted) and any of their consultants and contractors may refer to during implementation phases of the project and against which their environmental performance must be appraised.

Note that this EMPr should remain flexible to changes in project planning, although the Department of Environmental Management and Development Planning (DEA&DP) must be notified of significant changes or deviations by the applicable EMPr amendment provisions in the EIA Regulations. Such notification must be submitted with a motivation for such deviation, and DEA&DP given the opportunity to comment and review the conditions of the EA. Significant deviations may necessitate an amendment of the EA, which is subject to a predefined set of procedures and involves a public participation process.

3 LEGISLATION AND RESPONSIBILITIES

Appendix 4 of the NEMA EIA Regulations 2014 (as amended) specifies the requirements of an EMPr. Table 1 below serves as a guide to how the requirements detailed in Appendix 4 have been adhered to:

Table 1: Requirements of an Environmental Management Programme (EMPr) as detailed in Appendix 4 of the NEMA EIA Regulations 2014 (as amended).

No.	Requirement	Reference
1(a)	(i) details of the EAP who prepared the EMPr; and	Section 3Error! Reference source not found.
	(ii) details of the expertise of that EAP to prepare an EMPr, including a curriculum vitae	Annexure A
1(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 1.2 and Section 2
1(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 1.2 and Annexure 2
1(d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development, including -	Sections 4, 5 & 6
	(i) (i) planning and design;	Section 5
	(ii) (ii) pre-construction activities;	Section 5
	(iii) (iii) construction activities;	Section 5
	(iv) (iv) rehabilitation of the environment after construction and, where applicable, post closure;	Sections 5 & 6
	(v) (v) where relevant, operational activities;	Section 5
1(e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d)	Sections 5 & 6
1(f)	a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to -	Sections 5 & 6
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Sections 5 & 6
	(ii) comply with any prescribed environmental management standards or practices;	Sections 5 & 6
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	N/A
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	N/A
1(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Sections 5 & 6
1(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Sections 5 & 6
1(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Sections 5 & 6
1(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Sections 5 & 6
1(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Sections 5 & 6
1(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 4

1(m)	an environmental awareness plan describing the manner in which -	Section 5
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Section 5
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 5
1(n)	any specific information that may be required by the competent authority.	None to date.

The Department of Environmental Affairs & Development Planning's (DEA&DP¹) *Guideline for Environmental Management Plans* (2005) aims to inform and guide the preparation and implementation of EMPs. The requirements outlined within the guideline, as well as the requirements specified in Appendix 4 of the EIA Regulations 2014 (as amended) (Table 1 above) have been considered in compiling this document. The DEA&DP guideline defines EMPs as:

“an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the project are enhanced”

The EMP must address the potential environmental impacts of the proposed activity on the environment throughout the project life-cycle including an assessment of the effectiveness of monitoring and management arrangements after implementation. The Department requires that the EMP be submitted together with the Assessment Report so that it can be considered simultaneously.

This document should be seen in an iterative context allowing for amendments throughout the life-cycle of the project, allowing for adjustments as new information is made available, unforeseen situations arise or conditions warrant adaptation.

Sections 24N (2) and (3) of the NEMA listing the requirements of an EMP are given in Table 2.

Table 2: Section 24N (2) and (3) of the NEMA, listing the requirements of an EMP.

24N.(2) <i>the environmental management programme must contain-</i>	
(a)	<i>information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified in a report contemplated in subsection 24(1A), including environmental impacts or objectives in respect of –</i>
	<i>(i) planning and design;</i>
	<i>(ii) pre-construction and construction activities;</i>
	<i>(iii) the operation or undertaking of the activity in question;</i>
	<i>(iv) the rehabilitation of the environment; and</i>
	<i>(v) closure, where relevant.</i>
(b)	<i>details of –</i>
	<i>(i) the person who prepared the environmental management programme; and</i>
	<i>(ii) the expertise of that person to prepare an environmental management programme</i>
(c)	<i>a detailed description of the aspects of the activity that are covered by the draft environmental management plan;</i>
(d)	<i>information identifying the persons who will be responsible for the implementation of the measures contemplated in paragraph (a);</i>
(e)	<i>information in respect of the mechanisms proposed for monitoring compliance with the environmental management programme and for reporting on the compliance.</i>
(f)	<i>as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed 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</i>
(g)	<i>a description of the manner in which it intends to</i>

	(i) modify, remedy, control, or stop any action, activity or process which causes pollution or environmental degradation;
	(ii) remedy the cause of pollution or degradation and mitigation of pollutants; and
	(iii) comply with any prescribed environmental management standards or practices.
(3)	the environmental management programme must, where appropriate-
(a)	set out time periods within which the measures contemplated in the environmental management programme must be implemented;
(b)	contain measures regulating responsibilities for any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of prospecting or mining operations or related mining activities which may occur inside and outside the boundaries of the prospecting area or mining area in question; and
(c)	develop an environmental awareness plan describing the manner in which-
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment.

3.1 Legal Framework

3.1.1 NEMA Listed Activities

The NEMA provides the framework for environmental decision-making in the country, and specifically, the EIA Regulations (2014) serve as the instrument through which development decisions are made. South Africa has rigorous and comprehensive environmental legislation aimed at preventing degradation of the environment. Section 28(1) of NEMA places a “*duty of care and remediation of environmental damage*” on every person who causes, has caused, or may cause significant environmental degradation. This is a far-reaching obligation, and accordingly, those parties responsible for the degradation of the environment have a legal duty to avoid, minimise or mitigate such impacts.

This has resulted in a set of Listed Activities that can be triggered by developments of a certain nature and/or taking place in sensitive environments, e.g., close to watercourses. Table 3 below contains the listed activities applicable to this project.

Table 3: Listed activities and motivation for applicability

Activity No(s):	Provide the relevant Basic Assessment Activities as set out in Listing Notice 1	Describe the portion of the <u>proposed development</u> to which the applicable listed activity relates.
12	The development of – (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 m²; or (ii) infrastructure or structures with a physical footprint of 100 m² or more; where such development occurs – (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 m of a watercourse, measured from the	The proposed rehabilitation of slope 1 of the Steenbras (WTP) access road will have erosion protection structures with a physical footprint of more than 100m². The erosion protection structures are located within a watercourse.

	edge of a watercourse – excluding – (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.	
19	The infilling or depositing of any material of more than 10 m³ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m³ from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The proposed rehabilitation of slope 1 will entail the infilling, deposition, removal of more than 10m ³ from a watercourse.
Activity No(s):	Provide the relevant Basic Assessment Activities as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
12	The clearance of an area of 300 m ² or more of indigenous vegetation except where such clearance of indigenous vegetation is required for	The proposed rehabilitation of slope 1 of the Steenbras WTP access road will entail the clearance

	maintenance purposes undertaken in accordance with a maintenance management plan. i. Western Cape i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 m inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	of more than 300m² of the Kogelberg Sandstone Fynbos.
14	The development of: i. Dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square meters: or ii. Infrastructure or structures with a physical footprint of 10 square meters or more. i. Western Cape ii. Outside urban areas: (a) A protected area identified in terms of NEMPAA, excluding conservancies. (b) National Protected Area Expansion Strategy Focus areas. (c) World Heritage Sites. (d) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority. (e) Sites or areas listed in terms of an international convention. (f) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans	The proposed repair of slope 1 will entail the construction of erosion protection structures (Anchored Gabion Wall) with a footprint of approximately 6500 m². Slope 1 is located within a Critical Biodiversity Area as identified in the Western Cape Biodiversity Spatial Plan (WCBSP).

	adopted by the competent authority or in bioregional plans. (g) Core areas in biosphere reserves; or (h) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determine	
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3.1.2 National Water Act (Act No. 36 of 1998) (NWA)

The Department of Water & Sanitation (DWS) is the custodian of South Africa's water resources and therefore assumes public trusteeship of water resources, which includes watercourses, surface water, estuaries, and aquifers. The National Water Act (No. 36 of 1998) (NWA) aims to protect water resources through:

- The maintenance of the quality of the water resource to the extent that the water resources may be used in an ecologically sustainable way;
- The prevention of the degradation of the water resource;
- The rehabilitation of the water resource;
- A watercourse means;
 - A river or spring;
 - A natural channel in which water flows regularly or intermittently;
 - A wetland, lake or dam into which, or from which, water flows; and
 - Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

No activity may take place within a watercourse unless it is authorised by the DWS. According to Section 21 (c) and (i) of the NWA, a WUL is required for any activities that impede or divert the flow of water in a watercourse or alter the bed, banks, course or characteristics of a watercourse. The regulated area of a watercourse for section 21(c) or (i) of the NWA water uses means:

- a. *The outer edge of the 1 in 100-year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;*
- b. *In the absence of a determined 1 in 100-year flood line or riparian area, the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance with section 144 of the Act); or*
- c. *A 500 m radius from the delineated boundary (extent) of any wetland or pan.*

3.2 Structure of the EMPr

The EMPr has been structured to include the following sections to address environmental management throughout the project life cycle:

- Section 1: Overview of the project and legislative context
- Section 2: Project description providing a summary of the proposed development
- Section 3: Summary of applicable
- Section 4: Summary of the impacts that were assessed by the various specialists as part of the BAR
- Section 5: Implementation of the EMPr, detailing the roles and responsibilities of the various role players involved in the implementation of this EMPr, compliance inspection, monitoring, record keeping and method statements

- Section 6: Environmental Management Plan detailing Pre-Construction, Construction, Operational and Decommissioning phase requirements
- Section 7: Plans, Permits and Programmes

3.3 Details of Applicant

CITY OF CAPE TOWN	
City of Cape Town 2nd Floor, Water and Sanitation Head Office, 8 Voortrekker Road, c/o Voortrekker and Mike Pienaar Cape Town 7530	Nikelwa Silimela Tel: (021) 400 6619 (landline) Email: Nikelwa.Silimela@capetown.org.za

3.4 Competent Authority

This EMPr is being submitted to the following competent authority for approval.

DEA&DP: DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING
Department Environmental Affairs and Development Planning 7 th Floor, Utilitas Building, 1 Dorp Street Cape Town 8000

3.5 Environmental Practitioner

ZUTARI (PTY) LTD	
Zutari Ms Silindile Sibiyi PO Box 509 George Landline: 044 805 5424	Zutari M Jane Mahaba PO Box 494 Cape Town Landline: 021 526 9400

4 PROJECT PHASING

4.1.1 Pre-construction

The pre-construction phase includes activities such as:

- Pre-construction monitoring;
- Appointment of the contractor/consultants;
- Contractor develops code of conduct for employees;
- Appointment of an Environmental Control Officer (ECO) and the relevant contractors and consultants;
- Processes to obtain permits, e.g., to remove protected tree or plant species;
- Pre-construction environmental workshop/induction training of all employees;
- Site demarcation;
- Establishment of a site camp;
- Demarcation of areas such as fuel areas and plant rescue (when applicable);
- Finalising of detailed design;

- Finalisation of any additional management and monitoring plans.

4.1.2 Construction

The construction phase commences with earthworks and thereafter includes all activities relating to the repair of the slope 1 of the Steenbras Access Road.

4.1.3 Operation

The operational phase commences when the proposed development is used for its intended purposes. This indicates the period during which the road will be open to public access again and also proved access to the Steenbras WTP.

4.1.4 Decommissioning

The decommissioning phase refers to the demolition of the development. Due to the nature of the project, there is no anticipated decommissioning of the erosion protection structure associated with the Steenbras WTP access road.

5 IMPLEMENTATION OF THE EMPR

5.1 Roles and responsibilities during the construction phase

5.1.1 Applicant/Proponent

The Proponent/Applicant refers to the holder of the Environmental Authorisation (EA) who will assume overall responsibility for the administration and implementation of the EA and EMPr. In this case the applicant is the CoCT. The CoCT will be responsible for the following tasks, amongst others:

- Ensure that all conditions of approval as contained in the EA are adhered to;
- Ensure that all the requirements as set out in this EMPr are adhered to and implemented;
- Ensure all authorisations, permits, consents are in place and any other legal requirements are settled before any action is undertaken that requires these to be in place;
- Provide resources and appoint external contractors as required for the implementation of this EMPr;
- Review and update the EMPr to include relevant conditions of the EA (if applicable) or where necessary;
- Provide all principal contractors working on the project with a copy of this EMPr as part of tender contract documentation to allow the contractors to cost for their requirements within their respective construction contracts; and
- Ensure close liaison with local municipal officials, local councillors and other stakeholders involved in socio-economic development to ensure that the project is integrated into wider socio-economic development strategies and plans for the area.

5.1.2 Site Engineer (SE) and/or Contract Manager

The term “Engineer” in the context of the EMPr refers to the company or companies so named in the Contract Data, whose function it is to administer the Contract as an agent to the Proponent. The term “Engineer” may also refer to “Employer’s Agent” or “Project Manager” depending on the construction contract.

The Contract Manager is a natural person nominated by the Engineer, who shall observe the execution of the Works, examine and test materials and workmanship, and deliver and receive communications to/from the Contractor. “Contract Manager” may also refer to “Employer’s Agent Representative” or “Supervisor”, depending on the construction contract.

The role of the Site Engineer and/or Contract Manager, pertaining to environmental matters, may include:

- Acting as an agent to the Proponent on matters relating to the environment, and compliance with the EMPr;
- Ensure compliance and monitoring of all Health, Safety and Environmental aspects as they relate to the project and in accordance with the relevant legislation.
- Receive and review ECO Reports, ensure that issues raised in these reports are addressed and report them to management as required;
- Approving, in consultation with the ECO, the Contractor’s Method Statements required in terms of the EMPr;
- Ensuring that the Contractor is well-versed in the contents of the EMPr and that their conduct is proactive and effective in terms of environmental management and protection measures;
- Ensuring the Contractor is aware of its responsibilities in terms of the EMPr, including (but not limited to):
 - Appointing an environmental officer/s to assist with the EMPr implementation.
 - Maintaining a register of public complaints, a record of how these are responded to and the timeframe provided for this.
 - Supporting the ECO in their role and responsibilities.
- Issue instructions to cease work where such an instruction is warranted; and
- Issuing relevant fines or disciplinary action that may be applicable.

5.1.3 Contractor

The principal contractor, hereafter known as the ‘Contractor’, is responsible for implementation and compliance with the requirements of the EMPr and conditions of the environmental authorisations, contract and relevant environmental legislation. The Contractor must ensure that all sub-contractors have a copy of and are fully aware of the content and requirements of this EMPr.

The Contractor is required, where specified, to provide Method Statements setting out in detail how the management actions contained in the EMPr will be implemented.

5.1.4 Environmental Site Officer

The ‘ESO’ refers to the nominated staff member of the Contractor who will fulfil the role of the Contractor’s environmental representative to monitor, review and verify compliance with the EMPr. The ESO shall liaise closely with the SE/Contract Manager and the ECO and shall ensure that the works on site are conducted in an environmentally responsible manner and in compliance with the requirements of the EMPr. The ESO will be appointed to the site throughout construction.

The role of the ESO will include, but is not limited to:

- Liaison between the Contractor and ECO on matters relating to the environmental considerations on site;
- Assisting with the compilation of environmental components of Method Statements on behalf of the Contractor;
- Provide environmental induction and awareness training to the Contractor’s on-site staff.
- Undertaking frequent/daily inspections of the various work areas to ensure all activities are being undertaken in accordance with the EMPr;

- Maintaining all site documentation and records pertaining to the EMPr and environmental matters and approvals;
- Providing a regular and routine account on environmental matters for the ECO, including any environmental incidents, events or accidents, and reporting on any entries in the Environmental Incident Report File or Complaints Register. This account may take the form of a written report or checklist, or similar, or a meeting with the ECO;
- Maintain a photographic record of the construction activities;
- Overseeing that corrective action is implemented within the stipulated timeframes where non-compliances are registered; and
- Responding to and reporting on environmental accidents, incidents and events immediately, and overseeing all works requiring remediation are undertaken in accordance with the ECO or SE/Contract Manager's instructions.

5.1.5 Competent Authority

DEA&DP is the competent authority responsible for issuing the EA and compliance with the conditions of authorisation contained in the EA and relevant environmental legislation. Its responsibilities include, amongst others:

- Overall enforcement of the EA and its conditions of authorisation;
- Review the EMPr and any required updates or revisions;
- Undertake compliance inspection site visits, if deemed necessary;
- Review ECO and audit reports;
- Review incident reports; and
- Enforcement of the legal mechanisms, should any contraventions of the EMPr or EA occur.

5.1.6 Environmental Control Officer

The Applicant shall appoint a suitably qualified and independent Environmental Control Officer (ECO) to monitor the Contractor's compliance in terms of this EMPr and the conditions of the EA and address environmental site issues. The ECO shall work in close relation with the Contractor's appointed ESO. The ECO must be a suitably qualified (National Diploma / Degree in Natural Science or an equivalent qualification), independent environmental manager, with adequate environmental knowledge to understand and monitor the implementation of the EMPr and must be knowledgeable in licencing and permitting requirements (issued and required) applicable to the site.

The duties of the ECO include, but are not limited to:

- Liaison with the Applicant/Proponent, Site Engineer and/or Contract Manager and DEA&DP;
- Conduct environmental induction training with the contractor prior to commencement of work;
- Undertake routine monitoring of the Contractor's activities for compliance with the various environmental requirements contained in the EMPr, any specific conditions of authorisation contained in the EA, and per the ECO Schedule in Section 5.2.1 including:
 - Compilation of ECO Reports on the findings of the inspections, as well as on any emergency or unforeseen situations in which the expertise of the ECO has been consulted; and
 - Submission of ECO reports to the project team, DEA&DP and the Applicant/Proponent (or any other authority/body deemed necessary by the project team);
- Attendance of relevant site meetings with the engineer, contractor and other relevant project team members at least once a month or as may be required, depending on circumstances or any issues that need to be discussed;
- Conduct and/or oversee environmental induction and awareness training with the Contractor and staff;

- Monitoring compliance with the various environmental conditions/requirements contained in the EA and EMPr (refer to Section 5.2 for Compliance Monitoring);
- Review the Contractor's Method Statements (from an environmental perspective) required in terms of this EMPr, prior to the proposed activities taking place;
- Encourage the proactive and effective implementation and management of environmental protection measures;
- Monitoring that the appropriate remedial action is implemented in the event of non-compliance and capturing proof of such in the subsequent ECO Report;
- Monitor that a register of public complaints is maintained by the Contractor and that any and all public comments or issues are appropriately and timeously reported and addressed;
- Recording and reporting of environmental incidents;
- Consult with the SE/Contract Manager and Contractor should any non-compliances meriting a potential 'stop-work' instruction be observed;
- Providing ad-hoc environmental advice, including opinions on environmental legal requirements, to the Proponent and the Contractor regarding issues that may arise during the Contract; and

Assist the contractor with obtaining other environmental permits, should any be outstanding

5.2 Compliance Monitoring and Reporting

5.2.1 ECO Schedule

Routine Compliance Inspections and Reports:

The Contractor shall allow the ECO (and any officials from DEA&DP, should the need arise) access to the site for the purposes of compliance monitoring. The ECO shall undertake routine monitoring of the Contractor's activities for compliance with the various environmental requirements contained in the EMPr, including but not limited to:

- Undertaking routine compliance inspections monthly for the duration of construction, or at the defined intervals as provided in the conditions of the EA if these are more frequent.
- Documenting the findings of each of the inspections. This may take the form of a diary entries, a checklist, a report or similar, but must include dated photographic evidence of any identified issues (where possible). Any findings of non-compliance must be clearly communicated to the Contractor, together with timeframes for the implementation of remedial action and close out.
- Weekly ECO inspection visits during the initial clearing and earthwork activities and a report that summarises the findings of the compliance inspections. The weekly inspections can be moved to monthly at the discretion of the ECO, but it is anticipated that weekly inspections would be required for the first month of clearing and earth moving activities.
- Monthly site visits during the construction period and a report that summarises the findings of the compliance inspections undertaken, as well as progress on any remedial action that was required during the month in question. In the event of non-compliance, the report may include:
 - Relevant/supporting documentation or evidence of the non-compliance (e.g. minutes of any meetings held to discuss the non-compliance, email/written correspondence on the matter, dated photographic evidence);
 - Remedial action required to remedy non-compliance or prevent repeat occurrences, including responsible persons and deadlines for such action;
 - Dates of eventual compliance or close-out by the Contractor on previous non-compliance findings.
- Making reports available to the Contract Manager and the Contractor, and to DEA&DP on request.
- Participating in at least one monthly progress meeting with the project team, including the Contract Manager, the Contractor, and the ESO (or their representatives), or submitting monthly reports as required.

Environmental Emergencies, Incidents or Events:

Should there be environmental emergencies or incidents, then the ECO may also elect to inspect the site. The ECO shall ensure that any entries in the Environmental Incident Report File and Complaints Register are tabled at the monthly progress meeting and appropriately addressed

5.2.2 Disciplinary Action, Penalties and Fines

Penalties will be issued for certain transgressions. Penalties may be issued per incident as per the discretion of the Engineer. Such penalties will be issued in addition to any remedial cost incurred as a result of non-compliance with this Specification. Penalties may be issued at the Engineer's discretion, and/or upon the request/ recommendation of the ECO. The Engineer will inform the Contractor of the contravention and the amount of the penalty and shall be entitled to deduct the amount from the monies due under the contract.

Depending on the nature of transgression, the Engineer and/or ECO may issue one or more warnings to the Contractor prior to the issuing of a fine. Warnings may be given in writing or orally, but oral warnings should be followed up with written confirmation of the warning within 48 hours of the oral warning. The Engineer has the discretion to issue a fine without first issuing a warning, if the severity of the transgression is judged by the Engineer and/or ECO to warrant such action. Penalties for the activities detailed below will be imposed by the Engineer on the contract and/or his sub-contractors.

Table 4: Penalties for transgressions imposed on the Contractor

No.	Transgression	Minimum Fine	Maximum Fine
1	Failure to produce the required method statement/s to the engineer's and ECO's satisfaction prior to undertaking the activity concerned and/or failure to adhere to an approved method statement	R 1000	R 5000
2	Failure to notify the ECO of the commencement of construction or pre-construction activities, prior to the commencement of such activities	R 1 000	R 2 000
3	Failure to comply with the provisions relating to the demarcation of all "no-go" areas, and the maintenance of the demarcated boundaries.	R 1 000	R 5 000
4	Failure to comply with the provisions relating to the demarcation of all "no-go" areas, and the maintenance of the demarcated boundaries.	R 2 000	R 5 000
5	Failure to comply with the provisions relating to the demarcation of the working area, site camp and associated facilities, and the maintenance of the demarcated boundaries.	R 1000	R 5 000
6	Any employees, vehicles or plant, related to the Contractor's operations entering the designated boundaries of a "no-go" area.	R 1000	R 10 000
7	Clearance of indigenous vegetation (regardless of the density of alien vegetation present) outside of the demarcated boundaries of the working area and site camp	R 2500	R 15 000
8	Failure to adhere to designated access routes and/or the driving of vehicles through undeveloped vegetation outside of the demarcated working area or site camp.	R 1 000	R 5 000
9	Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractor's operations, outside of the areas demarcated for such parking/storage.	R 500	R 5000
10	Persistent and un-repaired oil leaks from machinery, equipment, vehicles and plant.	R 1 000	R 10 000
11	Maintenance of vehicles, machinery or equipment outside of the designated maintenance yard, except in emergencies	R 500	R 2 000
12	Persistent failure to use, monitor and empty drip trays timeously	R 500	R 2 000

13	The contamination of soil or water due to inappropriate methods for refueling	R 500	R 2 000
14	A hazardous spill, pollution, fire or any damage to the environment resulting from negligence on the part of the Contractor	R 5 000	R 20 000
15	Mixing cement or concrete on bare ground and/or failure to comply with any other provision regarding cement/ concrete batching	R 1 000	R 5 000
16	Failure to adhere to the provisions relating to traffic management and road safety.	R 1 000	R 10 000
17	Litter, poor waste management / housekeeping on the construction site	R 500	R 2 000
18	Deliberate lighting of illegal fires on site.	R 1 000	R 5 000
19	Employees not making use of the site ablution facilities.	R 500	R 2000
20	Failure to adhere to the provisions relating to emergency preparedness.	R 1 000	R 5 000
21	Failure to adhere to the provisions relating to environmental awareness training of construction workers, including sub-contractors and service providers rendering a service to the construction site.	R 1 000	R 5 000
22	Work done outside of the agreed working hours.	R 10 000	R 50 000
23	Failure to remove water that has collected in depressions or excavations on site while the site is temporarily closed.	R 1 000	R 4 000

For each subsequent similar offence, the penalty shall be doubled in value to a maximum value of R 50 000.

The value of the fine should not be less than the costs of remediating the damage (negative impact) caused by the transgression. In instances where the fine values indicated in Table 4 are not sufficient to cover the costs of remediation, the fine value must be increased appropriately, or the costs must be recovered from the Contractor via an alternate means.

The Engineer must ensure that the levying of fines/penalties forms part of the contract between the Contractor and the Engineer and is subject to the provisions of South African contract law. The Engineer will inform the Contractor of the contravention and the amount of the fine and will deduct the amount from monies due in payment certificates issued under the Contract. Except where separate pay items have been measured in the Bills of Quantities, all costs in respect of complying with the EMPr are deemed to be covered by the sum tendered for complying with the EMPr.

5.2.3 Collection and management of fines

The Engineer is responsible for the collection and management of fines.

Monies collected via fines/ penalties may not be used for the rehabilitation of the site, or any other areas impacted by construction activities, as the Contractor is liable for the costs of remediating any environmental damage caused by the actions of the Contractor, in addition to the levied fines/ penalties.

Payment of a fine/ penalty by the Contractor does not absolve the Contractor from the requirement to fund the remediation of the environmental damage caused by the Contractor. The monies collected from penalties must be used for the benefit of the local environment and may not be utilised for benefit of the Contractor, Engineer or their construction-related service providers.

The Engineer must record and report all levied fines to the ECO and must at all times be able to account for the monies collected (or "held back") via fines/ penalties. The Engineer must at all times be able to prove that such monies have been (or will be) used to the benefit of the environment, that the monies have not been used for any other purpose, and that the monies have not been used to benefit of the Engineer, Contractor or their construction-related service providers. The Engineer must, upon request,

provide proof of the management and use of the funds to the ECO, Employer or an Auditor appointed by the Employer to oversee the management of these funds.

5.2.4 Auditing and reporting of fines

The Auditor is responsible for environmental monitoring, which includes recording and reporting on all financial penalties levied against the Contractor for non-compliance with the EMPr. The Engineer must report all fines imposed on the Contractor to the Auditor and provide an account statement reflecting the management and use of the collected funds, together with proof of all payments or donations made from these monies.

Each Audit monitoring report must specify the fines or penalties levied during the reporting period, the reasons for the fines, and their values. The cumulative total of all fines/penalties levied to date (i.e., monies withheld by the Engineer) must also be indicated.

Environmental auditing, in accordance with Regulation 34 of the EIA Regulations, 2014 (as amended), will be undertaken by an independent auditor appointed by the Employer. The final audit report must confirm how these monies have been utilised and must include supporting proof, in compliance with Appendix 7 of the EIA Regulations.

5.3 Environmental Incident Report File

The Contractor shall maintain an Environmental Incident Report File (EIRF) on site to document environmental incidents, emergencies or accidents occurring as a result of the construction activities, and any resulting action taken to remedy the harm, and/or prevent repeat occurrences.

- The EIRF must have numbered pages. Any missing pages must be accounted for by the Contractor.
- Entries made shall be tabled during monthly site meetings.
- The EIRF shall be made available to the SE/Contract Manager, the ECO, the Project Company, and/or any authority at any time if requested.

The EIRF must document:

- The exact nature and root cause of the environmental incident;
- Evidence (e.g. photos) of the nature of the incident;
- The management team or contractor responsible for the activity;
- The timing and duration of the event;
- Witnesses to the event; and
- The exact response action applied, including a list of those notified of the incident.

The Contractor shall ensure that the environmental incidents and resulting actions are recorded in the EIRF and that these are brought to the attention of the ECO as soon as practically possible. The procedure for dealing with an environmental incident shall include that:

- The EIRF is to be filled in by the ESO in the event of an environmental incident or emergency.
- The ESO is to immediately inform the Contractor and ECO of any environmental emergency for a decision on remedial action. However, the inability of the ESO to contact the Contractor or ECO shall not be a reason for withholding immediate remedial action where the ESO judges this to be necessary.
- The ECO shall document all incidents/emergencies in the monthly compliance report, together with the remedial action taken, as described in the EIRF.
- The ECO shall monitor that the necessary procedures and responses are followed by the Contractor to close out any entries in the EIRF within the specified timeframe.
- Once an incident or emergency has been adequately addressed to the satisfaction of the ECO, the ESO may close out the entry in the EIRF.

5.4 Complaints Register

The Contractor shall keep a Complaints Register on site to allow the general public to document any comments on or complaints regarding the activities of the site:

- The Complaints Register must have numbered pages. Any missing pages must be accounted for by the Contractor.
- Entries made shall be tabled during monthly site meetings.
- The Complaints Register shall be made available to the SE/Contract Manager, the ECO, the Project Company, and/or any authority at any time if requested.

The Complaints Register shall include a section for the documentation of the action taken to address the complaint. The procedure for dealing with public complaints shall include:

- All complaints shall be investigated, and a response shall be given to the complainant within 28 calendar days;
- The ESO shall document the action taken to investigate and address (if required) the complaint, as well as the response given (including timeframes);
- The ECO shall monitor that the complaints have been responded to; and
- The ECO shall ensure that any public issues have been brought to the attention of the relevant authorities by the Contractor if so required, and appropriately addressed.

5.5 Method Statement

An environmental Method Statement is a written submission by the Contractor to the SE/Contract Manager, to the satisfaction of the ECO, in response to a condition of approval and/or a requirement of the EMPr, or a request by the ECO or SE/Contract Manager. The Method Statement describes the plant, materials, labour and method that the Contractor proposes to use to carry out an activity, in such detail that the SE/Contract Manager and ECO are able to assess whether the Contractor's proposal is in accordance with the Scope of Work and/or will produce results in accordance with the EMPr.

Method Statements are required in terms of this EMPr (either specified below, or for any activities that are proposed as variations to the standard construction practices detailed or referred to in the Contract Documents, or for any activities requiring special attention as specified in this EMPr and/or requested by the ECO or SE/Contract Manager as well as any requirements of permits or licenses such as a Water Use License).

The Contractor shall not commence any activity until the Method Statement in respect thereof has been approved and shall, except in the case of emergency activities, allow a period of one week for consideration of the Method Statement by the SE/Contract Manager and ECO. Changes may be requested if the proposal does not comply with the specification or if, in the reasonable opinion of the SE/Contract Manager and/or ECO, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment more than that permitted by the EMPr.

Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract.

Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. The Contractor shall carry out the works in accordance with the approved Method Statement.

If changes to the original approved Method Statements are proposed, amended Method Statements shall be submitted to the ECO for approval.

5.5.1 Required Method Statements

The following required Method Statements (as relevant and if not already required in terms of the Contract) are to be provided and approved prior to the Contractor's arrival on site:

- Emergency preparedness – which shall address procedures and equipment for medical emergencies, runaway fires, environmental incidents, site evacuation and staff assembly.
- Site establishment – which shall address Contractor's camp/s, lay-down or storage areas, site access and required infrastructure.
- Ablution facilities – which shall address washing facilities (including methods for managing grey water) and toilets (including the number of, location and method of securing portable/chemical toilets to the ground (if not trailer versions), the proposed service providers to remove and dispose of resultant waste and their service schedule).
- Hazardous Chemical Substances (as defined in the Regulations for Hazardous Chemical Substances in GN 179 (25 August 1995)), hydrocarbon substances (which include all fuels and oils) or dangerous goods to be used, which shall address the storage, handling and disposal procedures of the materials.
- Hydrocarbon spills – which shall address the procedures, reporting and training required to address accidental spills.
- Concrete Mixing and batching plants – which shall address locations, bunding, and cement-laden water management.
- Waste Management – which shall address the type of waste anticipated; the storage, handling, reuse, recycling and/or disposal procedures proposed, together with the facilities proposed to receive such waste.

The following required Method Statements (where relevant and if not already required in terms of the Contract) must be provided at least 14 calendar days prior to the commencement date of the subject works or activity:

- No-Go area demarcation and access control within the approved development site/servitudes;
- Workshop and plant servicing;
- Vegetation clearing – including methods and areas for clearing and felling;
- Stockpile management – including proposed locations and erosion management; and
- Working in watercourses or wetlands - access, crossings, dewatering activities.

5.6 Environmental Awareness training and staff induction

The Contractor shall ensure that all staff receive site environmental awareness and staff induction training in appropriate languages, as well as any refresher courses, pertaining to their role on the project, including:

- All personnel (including subcontractors) shall receive induction training on the Code of Conduct and project-specific environmental awareness relating to the conditions of the EA and EMP prior to commencing construction.
- All personnel shall receive induction training on the emergency procedures to be followed in the event of an emergency (e.g. staff assembly and site evacuation, medical emergencies, the locations and basic use of fire extinguishers, first aid kits and spills kits, and the use of safety equipment (where relevant)).
- All personnel (including subcontractors) shall receive regular toolbox talks and refresher courses on the induction material, and project-specific environmental awareness for the duration of the contract, including "lessons learnt" to prevent recurring issues.

The SE/Contract Manager and Contractor will conduct environmental induction training with personnel and must address, amongst others:

- Explanation of the environmental process that preceded the EA and why it was important to conduct the environmental process;
- Explanation of the conditions of authorisation contained in the EA;
- The sensitive environmental features located within and around the site;
- The reasons why mitigation measures are required and the benefits of implementing these measures;
- The EMPr and its contents (e.g. no-go areas, animals, littering, etc.); and the role of the ECO.

5.7 Record Keeping

All records and documents relating to the implementation of this EMPr shall be retained, shall be easily retrievable for the duration of the Contract, and shall be filed by the Contractor for a minimum of 12 months after cessation of activities. These records and documents must be made available to the SE/Contract Manager, ECO and/or Competent Authority upon request.

These records and documents shall include (but shall not be limited to) the most recent versions of:

- The EA.
- Permits, licenses and registrations;
- The EMPr and any associated management plans;
- EIRF and Complaints Register;
- Approved Method Statements;
- Staff induction and environmental training material and attendance registers;
- Checklists for temporary site closure;
- Monthly compliance reports prepared by the ECO;
- Incident reports;
- Certificates of waste disposal;
- Disciplinary action (including time penalties or monetary fines) for environmental transgressions; and
- Independent Environmental Audits.

6 ENVIRONMENTAL IMPACTS

6.1 Impacts assessed as part of the BAR Process

During the BAR process, the various specialists identified several impacts to be assessed and proposed mitigatory measures to manage the various potential impacts. The outcome and intent of the impact management recommendations, i.e., the mitigation measures, are to reduce the level of impact on the environment to acceptable levels. The preferred method would be to avoid impacts. However, this is not always possible.

The various identified impacts were assessed as part of the BAR process and were assigned an impact rating (significance) for both pre- and post-mitigation.

Table 5: Summary of potential impacts identified and their respective significance ratings pre- and post-

Aspect	Impact	Pre-mitigation	Post-mitigation
Pre-construction			
No impacts have been identified for the pre-construction phase.			
Construction			
Botanical/Terrestrial	Loss of SCC & ecological processes	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
Botanical/Terrestrial	Loss of SCC	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
Aquatic	Aquatic habitat disturbance as well as possible flow and water quality impacts during construction	Minor (-)/Low (-)	Negligible (-)/ Very low (-)
Animal	Loss of habitat likely to support SCC	Moderate (-)/ Medium (-)	Minor (-)/Low (-)
Animal	Potential loss of SCC	Moderate (-)/ Medium (-)	Minor (-)/Low (-)
Animal	Anthropogenic disturbance (construction noise/human presence)	Moderate (-)/ Medium (-)	Minor (-)/Low (-)
No-go	No Loss of SCC	Major (-)/ High	
No-go	Status Quo Remains Resulting in the road remaining closed for public access	Moderate (-)/ Medium (-)	Moderate (-)/ Medium (-)
No-go	Status Quo Remains Resulting in no Change to Physical Environment	Negligible (-)/ Very low (-)	-
Operation			
Botanical/Terrestrial	Loss of vegetation and ecological processes and SCC	Minor (-)/Low (-)	Minor (-)/Low (-)
Animal	Reduced ecological function	Minor (-)/Low (-)	Minor (-)/Low (-)

7 ENVIRONMENTAL MANAGEMENT AND MITIGATION

This chapter sets out the necessary practical mitigation measures to be undertaken to address the activities and potential impacts identified and assessed in the BAR. The sections below provide the mitigation measures for each project phase, i.e. pre-construction, construction, operation and decommissioning.

In the following sections, the tables provide the following information:

Mitigation measures	Measures provided by the EAP and specialists aim to reduce potential negative impacts and enhance potential positive impacts. These measures have been broken into rows that separate responsibility and refer to different site actions, e.g., site demarcation and vegetation clearing. General best practice measures are also included.
Responsibility	Which role-player is responsible for the specific mitigation?
Timeframe	When the actions must take place.
Monitoring method and frequency	Monitoring activities required by the ECO or other responsible party.

7.1 Pre-Construction

Mitigation measures (impact management actions)	Responsibility	Implementation Timeframe	Monitoring
TERRESTRIAL (FAUNA & FLORA) AND AQUATIC ECOLOGY			
ECO (or relevant person) to walk ahead of clearing construction machinery and move slow moving species, e.g. tortoises, out of harm's way and into suitable neighbouring habitat.	ECO	Pre-construction	ECO- as per schedule
A detailed Rehabilitation Plan must be prepared prior to construction commencement and approved by the appointed ECO and relevant authorities (CapeNature / City of Cape Town). The plan must include, at minimum: - Careful stripping, temporary stockpiling and reinstatement of topsoil (with appropriate stockpiling height and erosion protection); - Implementation of a search-and-rescue operation for any translocatable species and SCC individuals that cannot be avoided; - Active revegetation using locally appropriate indigenous seed (sourced from the immediate area); - On-going monitoring of rehabilitation success (vegetation cover, species richness, erosion stability) for at least two growing seasons post-construction; - Adaptive management actions in the event of poor establishment or erosion recurrence.	ECO/Contractor	Pre-construction	ECO- as per schedule
Demarcate the site area prior to the commencement of any construction activities. All areas outside of the project site are to be marked as no-go areas. The no-go zones are to be marked throughout the project life cycle. No vegetation should be cleared outside of the project footprint.	ECO/Contractor	Pre-construction	ECO- as per schedule
GENERAL			
Compliance and auditing			
Appoint a suitably qualified independent ECO. This person must have appropriate experience in environmental management and a good understanding of local fauna and flora. The ECO must be able to make clear recommendations about the management of disturbed area.	Proponent/ECO	Tender For the duration of the construction period.	ECO- as per schedule

Make provision for environmental auditing at project completion to assess the effectiveness of monitoring and management arrangements undertaken during the course of the project. The audit report should be submitted to the client, engineer, ECO, and competent authority.	Proponent/Engineer	Project completion	Independent auditor
An Alien Invasive Species Management Plan must be prepared by the Employer prior to construction commencing. Such a plan must include maps indicating where clearing is to be done, including all follow-up clearing, the methods to be used for clearing, as well as the frequency and timing of these activities.	Proponent/ECO	Once-off during the pre-construction phase	On-going
Method statements			
Method Statements must be submitted and approved prior to site establishment commencing. Changes to a Method Statement may be required if the proposal does not comply with the EMPr specifications or if the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the EMPr. The content and required actions of the Method Statements must be communicated to site staff through compulsory induction training. Refer to Section 5.5 for the list of Method Statements required	Submitted by Contractor, approved by ECO	Prior to site establishment	ECO- as per schedule
Code of conduct			
The Contractor must develop a project-specific Code of Conduct in consultation with representatives from the applicant. The code must identify which types of behaviour and activities are unacceptable. Construction workers in breach of the code must be dismissed or subject to strict disciplinary action. All dismissals must comply with the South African labour legislation.	Contractor	Project lifecycle	ECO- as per schedule
Training and Awareness			
Pre-construction environmental induction for all construction staff on site must be undertaken to ensure that basic environmental principles are adhered to. This includes awareness of harm caused by littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc. Appropriate emergency training (e.g. firefighting) must be given to the team prior to the construction period.	Contractor/ ECO	During site establishment	ECO- as per schedule

The need to implement a training and skills development programme for local workers must be investigated prior to the initiation of the construction phase. The aim of the programme would be to maximise local employment opportunities. The Contractor must provide appropriate fire-fighting equipment on site and ensure that selected construction staff are appropriately trained for fighting fires.			
Site establishment			
The contractor must submit a Method Statement indicating the exact location, extent and construction details of the construction camp, and the impact mitigation measures the contractor proposes to put in place to the ECO for approval – refer to Section 5.5 for more detail and guidance relating to method statements.	Contractor	Construction	ECO- as per schedule
The contractor shall establish the construction camp on site in a manner that does not adversely affect the environment.	Contractor	Construction	ECO- as per schedule
The construction footprint area must be limited to the minimum (project footprint).	Contractor	Construction	ECO- as per schedule
Deliveries must be scheduled outside of peak congestion periods, where possible.	Contractor	Construction	ECO- as per schedule

7.2 Construction Phase

Mitigation measures (impact management actions)	Responsibility	Implementation Timeframe	Monitoring
SPECIALIST MITIGATION MEASURES			
Terrestrial (Fauna & Flora) and Aquatic Ecology			
Minimisation of the construction footprint to the greatest extent possible	Contractor/SE	Construction	All
Avoidance and demarcation of vegetation and SCC localities outside the approved construction footprint	Contractor/SE	Construction	All
Prevention of landslides and erosion downslope of the construction area (e.g. silt fences, geotextiles, surface stabilisation, and appropriate stormwater management)	Contractor	Construction	ECO-as per schedule

Careful stripping, stockpiling and reinstatement of topsoil, implementation of a search-and-rescue prior to the construction, and on-going monitoring of rehabilitation success	Contractor/SE	Construction	ECO-as per schedule
Construction activities should be restricted to the summer months, outside of winter rain season.	Contractor	Construction	ECO-as per schedule
Strict adherence to guidelines regarding use of pesticides and herbicides. Neither herbicide nor pesticides shall be used within 2m of wetland or riparian habitat.	Contractor / SE	Construction	ECO- as per schedule
Mark off the areas that are not going to be developed prior to undertaking any works and ensure that no unnecessary loss of adjacent vegetation occurs.	Contractor / SE	Construction	ECO- as per schedule
Sites for building material stocks, vehicles, toilets etc must be clearly marked and restricted to the developmental footprint, existing roads or existing disturbed areas.	Contractor	Construction	ECO- as per schedule
Vehicles and machinery must meet best practice standards as this will minimise noise and vibrations. Where possible hand tools or smaller machinery is recommended to reduce noise, vibrations, or soil compaction (especially within areas defined as wetlands).	Contractor	Construction	ECO- as per schedule
No wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass.	All	Construction	ECO- as per schedule
If night lighting is applicable, night lighting must be minimised and if required, only down lighting must be used and placed as low as practical and low light emitting bulbs (LED's).	Contractor / SE	Construction	ECO- as per schedule
Heritage (Including Archaeology)			
Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately, and Heritage Western Cape must be notified without delay.	Contractor / SE / ECO	Construction phase	ECO- as per schedule

GENERAL			
Site establishment			
The contractor must submit a Method Statement indicating the exact location, extent and construction details of the construction camp, and the impact mitigation measures the contractor proposes to put in place to the ECO for approval – refer to Section 5.5 for more detail and guidance relating to method statements.	Contractor	Construction	ECO- as per schedule
The contractor shall establish the construction camp on site in a manner that does not adversely affect the environment.	Contractor	Construction	ECO- as per schedule
The construction footprint area must be limited to the minimum that is necessary.	Contractor	Construction	ECO- as per schedule
Deliveries must be scheduled outside of peak congestion periods, where possible.	Contractor	Construction	ECO- as per schedule
Vehicular access is restricted to designated roadways on site.	Contractor	Construction	ECO- as per schedule
Vegetation clearing and topsoil			
Cleared vegetation may not be disposed of as waste at a landfill site. As much as possible, vegetation clearing will occur in a phased manner in accordance with the construction programme to minimise impacts when rainfall does occur. Where possible, a low cover of vegetation must remain within the construction footprint to bind the soil and prevent erosion. To facilitate revegetation of denuded areas, topsoil will be stockpiled with seed banks intact as far as possible, for use in the rehabilitation phase. Disturbance of vegetation and topsoil must be kept to a practical minimum. Strip and stockpile topsoil from all areas where soil will be disturbed below the surface.	Contractor / ESO / ECO	Construction Phase	ECO- as per schedule
Stormwater management			
Where required (such as areas where water may accumulate), implement an effective system of stormwater run-off control using berms (raised, low walls of soil) and ditches. The system must effectively collect and safely disseminate any run-off water from all hardened surfaces and must prevent any potential downslope erosion.	Contractor	Monthly during construction	ECO- as per schedule

Site inspection must assess the effectiveness of the run-off control system and specifically record the occurrence (or not) of any erosion on site or downstream. Temporary cut-off channels and berms where required. Routing of run-off towards the existing watercourse and current drainage routes. Erosion protection by means of gabions, Reno mattresses, Geofabric and/or any combination thereof – per guidance of the ECO.			
Dust management			
Clear only areas necessary for undertaking planned works. Implement speed limits on site. Appropriate dust suppression measures shall be used when dust generation is unavoidable, e.g., dampening with non-potable water, particularly during prolonged periods of dry weather in summer. Such measures shall also include the use of temporary stabilising measures, e.g., chemical soil binders, straw, brush packs, chipping, etc.	Contractor	Project Lifecycle	ECO- as per schedule
A statement regarding dust management is required, i.e., the contractor is required to indicate in a method statement how dust emissions will be minimised prior to any site clearing/excavation activities.	Contractor	Construction phase	ECO- as per schedule
As far as possible, stockpile dust-generating materials away from areas where dust will be a nuisance or hazard.	Contractor/ ESO	Project Lifecycle	ECO- as per schedule
Ablution facilities			
Appropriate ablution facilities must be provided for construction workers. The Contractor may not allow temporary toilets to be erected within 100m of watercourses or wetland areas, unless agreed otherwise with the ECO. Toilets shall be secured to the ground. The Contractor shall ensure that all chemical toilets are cleaned and emptied regularly, especially prior to any temporary site closure or long weekend. Proof of disposal of portable toilet content at wastewater treatment works must be retained on site.	Contractor	Construction phase	ECO- as per schedule

Management against erosion and sedimentation			
Any stormwater within the site must be handled in a suitable manner, i.e. trap sediments and reduce flow velocities. Windbreaks and sediment traps may be necessary to prevent erosion and soil movement if there are topsoil or other soil waste heaps present during the wet season. Erosion channels formed during the construction phase must be backfilled and consolidated, and the areas must be restored to a proper, stable condition. No excavated holes or trenches must be left open for extended periods, as fauna may fall in and become trapped. Brush packing can be used in erosion channels or at drainage outlets. Alien vegetation may not be used for the purposes of brush packing. Flows will thus be allowed to dissipate over a broad area covered by natural vegetation. The Contractor shall undertake reasonable measures to prevent soil erosion of the rehabilitated areas.	Contractor	Construction phase	ECO- as per schedule
Waste management			
Potential sources of waste pollution must be used responsibly and strictly managed on-site. An integrated waste management approach in accordance with the Waste Management Hierarchy must be implemented on site. This should aim to avoid, reduce, reuse, recycle, recover and treat waste where possible, where disposal is the last resort.	Contractor	Construction phase	ECO- as per schedule
No waste is to be buried on the site. Waste may not be burned on site. All waste shall be disposed of at a licensed waste disposal facility. All waste storage areas on site must be kept tidy. All waste stored on site shall be secured so that it is not blown off-site by the wind.	Contractor	Construction phase	ECO- as per schedule
Sufficient weather- and vermin-proof bins shall be provided for the disposal of solid waste. The Contractor shall remove the refuse collected from the working areas at least once a week.	Contractor	Construction phase	ECO- as per schedule

Wherever possible, materials used or generated shall be separated and recycled.			
Hazardous waste, e.g. used oils, shall be separated from general waste, stored separately in appropriate containers and disposed of at a licensed hazardous waste disposal facility or certified recycling facility.	Contractor	Construction phase	ECO- as per schedule
Ensure that a suitable drainage system is in place to divert stormwater away from construction footprint areas.	Contractor	Construction phase	ECO- as per schedule
The rubbish dumped downstream should be cleaned up at the same time as the pipeline is installed. It would then be easier to determine if the contractor had dumped anything during construction.	Contractor	Construction phase	ECO- as per schedule
The watercourse upstream and downstream of the road crossing must be inspected for any litter following conclusion of works. All litter and any waste materials must be removed from the site	Contractor	Construction phase	ECO- as per schedule
Spoil management			
Any subsurface spoils from excavation must be disposed of so that they will not bury the topsoil of agricultural land. Any additional overburden must be respread below the topsoil layer and not mixed with it.	Contractor	Construction phase completion	ECO- as per schedule
Alien plant management			
All alien plant regrowth, which is currently limited within the greater region, must be monitored, and should it occur, these plants will be eradicated. Imported material shall be free of weeds, litter and contaminants.	Contractor	Construction phase	ECO- as per schedule ESO
Storage of construction material and stockpiling			
New construction material will be stored in demarcated areas on the affected properties prior to the commencement of construction.	Contractor	Construction phase	ECO- as per schedule
All manufactured and/or imported material must be stored within the demarcated area, and, if so required, out of the rain. All lay down areas outside of the construction camp must be subject to the Engineer and the ECO's approval in such a way as not to cause a nuisance or environmental damage.	Contractor	Construction phase	ECO- as per schedule
Contractors will not be allowed to store new construction material on the sides of the access road, or within natural vegetation or next to the existing access road	Contractor	Construction phase	ECO- as per schedule

Fuel storage and dispensing			
A Method Statement regarding fuel storage and dispensing is to be provided by the Contractor. Fuel shall be stored in accordance with relevant SABS specifications, and all fuel storage tanks shall be provided with adequate bunding (110% of the largest tank). (The bund floor shall be impermeable and sloped to a sump to enable removal of spilt fuel and contaminated water.) Adequate fire-fighting equipment shall be provided at fuel storage and dispensing areas	Contractor	Construction phase	ECO- as per schedule
In the event of a spill, the Contractor must immediately notify the ECO and submit an Incident Report. In the event of a fuel spill, all unusable fuel and contaminated soil shall be removed and disposed of at a licensed hazardous waste facility.	Contractor	Construction phase	ECO- as per schedule
Noise management			
Limit working times to 8:00 -17:00 on weekdays and 8:00 – 14:00 on Saturdays. No work shall occur on Sundays. No sound amplification equipment such as sirens, loud hailers or hooters may be used on site, after normal working hours, except in emergencies	Contractor	Construction phase	ECO- as per schedule
Traffic			
Regulations relating to traffic management shall be adhered to. All roads used for access during construction shall be left in an acceptable condition on completion of the project. Wherever possible, the transportation of bulk equipment or materials shall not be conducted during peak traffic times, before 9h00 and after 16h00. Appropriate traffic/ pedestrian management measures shall be put in place, including: Sign boards and flagmen to slow traffic down and to alert the public of the potential dangers presented by the construction activities. Other measures, as stipulated in the relevant contract specification.	Contractor	Construction phase	ECO- as per schedule

Safety and Security			
Telephone numbers of emergency services, including the local firefighting service, shall be posted conspicuously in the Contractor's office near the telephone. In the event of an emergency, the Contractor shall contact the emergency service in the area.	Contractor	Construction phase	ECO- as per schedule
Community relations			
The Contractor shall recognise that the site is visible to the public. As such, the construction camp shall be kept neat and clean at all times. Site equipment and materials will be kept away from other property entrances.	Contractor	Construction phase	ECO- as per schedule
The Contractor shall erect signage on the site that provides the contact details of the person(s) that the public can contact in case of complaints or incidents.	Contractor	Construction phase	ECO- as per schedule

7.3 Post Construction/Operational Phase

Mitigation measures (impact management actions)	Responsibility	Implementation Timeframe	Monitoring
General Mitigation Measures			
All temporary infrastructure and construction structures must be completely removed from the site.	Proponent	Post construction	On-going
Topsoil backfilling must only be conducted when the soil is dry and should not take place immediately after rainfall events.	Proponent	Post construction	On-going
Whenever possible, topsoil should be reused in situ during construction or replaced immediately after construction in a given area is completed.	Proponent	Post construction	On-going
Residents are to be encouraged to landscape with indigenous and endemic vegetation wherever possible. All landscaping is to be maintained.	Proponent	Operation phase	On-going
Alien vegetation management must be on-going within the development area as well as the public open space areas.	Proponent	Operation phase	On-going

Where erosion has occurred, determine an appropriate method of rehabilitation, such as revegetation with indigenous plants to stabilise soil or silt fences on slopes.	Proponent	Operation phase	On-going
The municipality must promote the use of bins in the communities and clean up areas where excessive littering is taking place. Recycling must be promoted where possible. Litter in public areas is to be cleaned up weekly. Waste may not be burned.	Proponent	Operation phase	On- going
Security lights are to be angled downwards to avoid disturbance to adjoining residents and businesses. Illumination of the buildings must consider the possible distraction glare might have on motorists.	Proponent	Operation phase	On- going
Periodically (biannually) inspect and clean the stormwater system. Cleaning of kerbs and channels: Sand, litter and refuse must be removed from kerbs and channels monthly or as required.	Proponent	Operation phase	On-going
The project developer is to use locally sourced inputs where feasible in order to maximise the benefit to the economy.	Proponent	Operation phase	On-going
Maintain buffer areas around all watercourses	Proponent	Operation phase	On-going
Monitor Culvert and remove any debris Monthly, during heavy rain periods increase the frequency to weekly.	Proponent	Operation phase	On-going

8 CONCLUSION

The EMPr is aimed at achieving “environmental best practice” which ensures environmental sustainability of the proposed repair of the damaged section of the Steenbras WTP Access Road. Recommendations and mitigation measures prescribed in this EMPr have been formulated with the intention of addressing potential pre-construction, construction and operational phase impacts on the environment.

If the conditions, requirements and recommendations of the EMPr are implemented accordingly and adhere to the various mitigation measures, then the project should be completed without unforeseen negative environmental impacts.

The EMPr is a living document that can be amended when necessary. It is flexible and responsive to new and changing circumstances that may arise on the project.

APPENDIX A

EAP CV



Silindile Sibiya

**Environmental Consultant:
Environmental Sustainability**

Qualifications

Bachelor of Environmental Sciences (Honours) Environmental Science, 2019

Bachelor of Science majoring in Geography and Hydrology, 2018

Professional Registrations and Memberships

IAIAsa Membership, International Association for Impact Assessment (IAIA), 2025

Environmental Practitioner, Environmental Assessment Practitioners Association of South Africa (EAPASA), 2023

Years Experience

7 Years (2019 - 2026)

Summary

Silindile is an environmental consultant at Zutari. She has over seven years' experience in the environmental consulting field. Her expertise includes environmental management, environmental impact assessments (EIAs) and environmental compliance monitoring. She is experienced compiling basic assessment reports for water projects, conducting public participation processes for these and environmental auditing. She has worked as an environmental control officer (ECO) for wastewater treatment works, water treatment works and reticulation projects. She also has experience in compiling water use license applications across different provinces in South Africa.

Employment Record

2023/01 - Date Zutari, Environmental Consultant

2019/01 - 2023/01 NM Environmental (Pty) Ltd, Junior Environmental Consultant

Relevant Experience

Legislative Compliance: Environmental Assessments for Expansion of Cemetery for Erf 624 & 625, Uniondale, South Africa, Municipality of George, 2023/09 - 2028/03, EAP

< Zutari was appointed by George Municipality to undertake a basic assessment process for the proposed cemetery located on Erf 624 and 625, Uniondale, Western Cape. Responsible as an EAP for all aspects of the project (incl. specialist management) and overseeing the compilation of relevant process documentation and notices.

Provision of professional engineering consultancy services: Macassar WasteWater Treatment Works, 32 ML/d Capacity extension, South Africa, City of Cape Town Water & Sanitation, 2021/11 - 2027/12, Junior EAP

Zutari was appointed to upgrade and extend the Macassar wastewater treatment works from a capacity of 48 ML/day to 120 ML/day. The project includes conceptual design, planning, preliminary and detailed design, tender documentation and evaluation, and construction supervision. Responsible for assisting with the compilation of the Basic Assessment Report.

Wildevolevlei Treated Effluent Pump Station, Filter Building and Pipeline, Kommetjie, Western Cape, Kommetjie, Western Cape. City of Cape Town. 11/2023-11/2024. EAP

Zutari was appointed to undertake a Basic Assessment Environmental Process for the construction of a Treated Effluent Pump Station, Filter Building and Pipeline at the Wildevolevlei Wastewater Treatment Works. Responsible for Compilation of Basic assessment report, EMPr and conducting the public participation process.

iLanga Solar Suite, South Africa, Seriti Green Developments South Africa (Pty) Ltd, 2022/04 - 2025/08, Junior EAP

Zutari was appointed by Seriti Green Developments South Africa (Pty) Ltd to facilitate the undertaking of a Basic Assessment process for a 315 Solar Facility, and an Overhead powerline (OHPL). Responsible for assisting with the compilation of the basic assessment reports Basic Assessment and public participation.

Desalination pre-feasibility - Melkbos / Blaauwberg Area, South Africa, City of Cape Town Water & Sanitation, 2024/05 - 2025/07, Junior EAP

The City of Cape Town is planning to undertake desalination implementation in phases. This initial development of desalination at this site is referred to as Location 1, for delivery of potable water into the City Bowl area by 2030. It has been determined that subsequent augmentation through further development of sea water desalination will be required. This will be through the development of Location 2, a second plant possibly to be accommodated along the City's West Coast. This Study shall investigate the five (5) identified options in the vicinity of Melkbos / Blaauwberg for the development of Location 2 and identify the most suitable site for a desalination plant with a peak capacity of 180 MLD to 360 MLD. Responsible for undertaking a desktop environmental screening for all potential desalination sites.

WP091: Morkels Cottage Environmental Assessment and Maintenance Management Plan, South Africa, City of Cape Town, 2023/11 - 2025/03, Assistant EAP

The City of Cape Town intends to conduct periodic repairs and maintenance work on the 810 mm bulk water pipeline within the Morkel's Cottage area in Strand, Western Cape Provincial Operations. The bulk (potable) water pipeline traverses several residential areas including Onverwacht, Rusthof, Forbes and Broadlands Village and a conservation area as demarcated by the COCT. The bulk water mains supply potable water to the COCT and connect the water treatment works, dams and other water sources and the COCT's potable water reticulation system. The project also triggers a water use in terms of the National Water Act which requires registration as a general authorisation. Responsible for the compilation of the MMP and undertaking a WULA application.

Ishwati Emoyeni Wind Farm Finalisation of Environmental Management Programme (EMPr), Murraysburg, Western Cape. African Clean Energy Developments (ACED). 11/2022 – 11/2023. Assistant EAP.

Zutari (Pty) Ltd was appointed to undertake the application process to the Department of Forestry Fisheries and the Environment (DFFE) for approval of the finalised layout and EMPr, as informed by specialist walkthroughs for the Ishwati Emoyeni Wind Energy Facility (WEF). Responsible for overall project management duties, review of technical and commercial documents, and client engagement.

Old Crocodile Farm Mixed Use and Social Housing Development, Basic Assessment. T/ING/010/2020 (Project 17: Legislative Compliance: Environmental). George Municipality, Western Cape. 05/2023 - 04/2024. Assistant EAP.

Zutari is appointed to undertake a Basic Assessment Environmental Process for a mixed-use and social housing project in George, Western Cape. Responsible for Compilation of Basic assessment report, EMPr and conducting the public participation process.

New Pacaltsdorp Water Tower and Reservoir, Basic Assessment. George Municipality, Western Cape. 03/2023 – 04/2024. Assistant EAP.

Zutari is appointed to undertake a Basic Assessment Environmental Process for a mixed-use and social housing project in George, Western Cape. Responsible for Compilation of Basic assessment report, EMPr and conducting the public participation process.

Servicing Mbizana town area with a 2 ML wastewater treatment works and outfall sewer, South Africa, Eastern Cape, Alfred Nzo District Municipality, 08/2019 - 02/2023, Environmental Control Officer (ECO) and Environmental Assessment Practitioner (EAP)

The project entailed the construction of a 2ML wastewater treatment works and outfall sewer, as well as compliance monitoring and S24G application for a 2 ML wastewater treatment works and outfall sewer. Responsible for environmental compliance monitoring and compiling audit reports for project team and competent authority. Also responsible for S24G application rectification of unlawful construction.

Vaal Gamagara regional water supply scheme phase 2: upgrading of existing infrastructure, South Africa, Northern Cape, Sedibeng Water, 06/2019 - 11/2021, Environmental Assessment Practitioner (EAP) sub-consultants

The project involved the upgrading of water infrastructure within the Vaal Gamagara region, Northern Cape. Responsible for compilation of public participation report and water use license application.

KwaLembe water supply scheme extension, South Africa, KwaZulu-Natal, Ugu District Municipality, 02/2021 - 10/2021, Environmental Assessment Practitioner (EAP)

The project entailed the upgrading of the existing bulk pipeline and water treatment works from 0.5 to 6.5 litres. This included an environmental impact assessment (EIA) and water use licence application (WULA). Responsible for the EIA process (basic assessment) and WULA process.

Ntinini-Vumankala borehole project, South Africa, KwaZulu-Natal, Umzinyathi District

Municipality, 06/2020 - 07/2021, Environmental Control Officer (ECO)

The project involved monitoring compliance for during construction of the boreholes and the reticulation system. Responsible for compliance monitoring and compiling audit reports.

Prospecting rights for Idlanga Mining, South Africa, KwaZulu-Natal, Idlanga Mining (Pty) Ltd, 02/2020 - 10/2020, Environmental Assessment Practitioner (EAP)

◀ The project entailed the prospecting rights on farm Roy Point and Tiger Kloof in Newcastle. Responsible for compilation of basic assessment report and conducting the public participation process.

Greater Mbizana water supply scheme phase 1A, Zone O, South Africa, Eastern Cape, Alfred Nzo District Municipality, 06/2019 - 05/2020, Environmental Control Officer (ECO)

The project involved monitoring compliance for during construction of the reticulation scheme. Responsible for auditing of construction activities against the EMPr and EA.

CONTRACT 194C/2020/21: Revised BWAS Study (BW-WP071), South Africa, City of Cape Town Water & Sanitation, 2021/11 - 2026/10

Zutari was appointed to finalise the preliminary design for the Muldersvlei 300 ML reservoir and infrastructure, and to handle detailed design, implementation, and site supervision. Our services included environmental assessments of pipeline routes, geotechnical test pit drawings, and long section drawings for incoming and outgoing pipelines.

Stellenbosch Municipality Tender BSM 13/21, South Africa, Municipality of Stellenbosch, 2022/04 - 2026/08

Zutari was appointed to develop a road transport safety master plan for Stellenbosch and audit existing traffic calming infrastructure.

Contract No. 08/2/18/62: Professional services for Witzenberg Municipality: Cluster 2: Upgrade & extension of the Wolseley WWTW, South Africa, Municipality of Witzenberg, 2022/10 - 2025/10

Zutari was tasked with designing an upgrade for Wolseley wastewater treatment works to 2.5 ML/day due to capacity and process needs. The project was executed in two phases: the first addressing critical upgrades and the second expanding capacity and enhancing the system.

Languages

English, isiXhosa, isiZulu

**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2021/3651

Herewith certifies that
SILINDILE LUNGISWA SIBIYA
is registered as an
Environmental Assessment Practitioner

**Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).**

Effective: 01 April 2026

Expires: 31 March 2027

Chairperson

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