PROPOSED UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT - SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE, IMPENDLE AND DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITIES, UMGUNGUNDLOVU AND HARRY GWALA DISTRICT MUNICIPALITIES, KWAZULU-NATAL

CONSTRUCTION & OPERATION ENVIRONMENTAL MANAGEMENT PROGRAMME & CLOSURE PLAN

DRAFT

November 2026

DFFE Ref. No.:	uMWP-1: Raw Water Component – Smithfield Dam & Associated Infrastructure – 14/12/16/3/3/3/94 & 14/12/16/3/3/3/94/AM2



TITLE AND APPROVAL PAGE

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LIST OF ACRONYMS & ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
BOCP	Biodiversity Offset and Compensation Plan
COGTA	Department of Cooperative Governance and Traditional Affairs
DEFF	Department of Environment, Forestry and Fisheries
DFFE	Department of Forestry, Fisheries and the Environment
DLRRD	Department of Land Reform and Rural Development
DM	District Municipality
DMPR	Department of Mineral and Petroleum Resources
DMRE	Department of Mineral Resources and Energy
DoT	Department of Transport
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAs	Environmental Authorisations
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECO	Environmental Control Officer
EDTEA	Department of Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EIAs	Environmental Impact Assessments
EKZNW	Ezemvelo KZN Wildlife
EM	Environmental Monitor
EMC	Environmental Monitoring Committee
EMPr	Environmental Management Programme
EO	Environmental Officer
EWR	Ecological Water Requirements
FSL	Full Supply Level
GBVH	Gender Based Violence and Harassment
GN	Government Notice
HIV	Human Immunodeficiency Virus
HRRP	Habitat Rehabilitation and Restoration Plan
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
km	Kilometre
KZN	KwaZulu-Natal
LM	Local Municipality
m	Metre
m^3/a	Cubic metres per annum
masl	Meters above sea level

MoA	Memorandum of Agreement
MSc	Master of Science
MSDS	Material Safety Data Sheets
MWSS	Mgeni Water Supply Scheme
NEMA	National Environmental Management Act (Act No. 107 of 1998)
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PUCMA	Pongola-uMzimkhulu Catchment Management Agency
RAP	Relocation Action Plan
RMP	Resource Management Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SANS	South African National Standard
SAPS	South African Police Service
SCC	Species of Conservation Concern
SHEQ	Safety, Health, Environment and Quality
STD	Sexually Transmitted Disease
SM	Social Monitor
SO	Social Officer
SRRP	Search, Rescue and Relocation Plan
SWMP	Stormwater Management Plan
TCTA	Trans-Caledon Tunnel Authority
ToR	Terms of Reference
uMWP-1	uMkhomazi Water Project Phase 1
UUW	uMngeni-uThukela Water

DEFINITION OF KEY TERMS

Auditing	*A systematic and objective assessment of an organisation's activities and services conducted and documented on a periodic basis.*
Construction Domain	*Entire footprint required for the construction of the overall project components.*
Environment	*The surroundings in which humans exist and which comprise:* • *The land, water and atmosphere of the earth.* • *Micro-organisms, plant and animal life.* • *Any part or combination of a) and b) and the interrelationships among and between them.* • *The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.*
Environmental Aspect	*Those components of the company's activities, products and services that are likely to interact with the environment.*
Environmental Feature	*Elements and attributes of the biophysical, economic and social environment.*
Environmental Impact	*The change to the environment resulting from an environmental aspect, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.*
Environmental Management Programme (EMPr)	*A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.*
Graves	*A place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such a place.*
Heritage Resource	*Any place or object of cultural significance. i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.*
Management Actions	*Practical actions aimed at achieving management objectives and targets.*
Management Objectives	*Desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources).*
Monitoring	*A systematic and objective observation of an organisation's activities and services conducted and reported on regularly.*
Palaeontological	*Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossil ferrous rock intended for industrial use, and any site which contains such fossilised remains or trace.*
Potable Water	*Water that is fit or suitable for drinking.*
Project Area	*The greater area within which the project is executed. Extends beyond the construction domain.*
Raw Water	*Natural (untreated) water found in the environment, such as water from bodies like dams and rivers.*

Sensitive environmental features	*Environmental features protected by legislation (e.g. graves, heritage resources, protected flora and fauna), or identified during the Environmental Impact Assessment as sensitive through specialists' findings and input received from Interested and Affected Parties.*
Target	Level of performance to accomplish management objectives.
Watercourse	*A geomorphological feature characterised by the presence of a streamflow channel, a floodplain and a transitional upland fringe seasonally or permanently conveying surface water. According to the National Water Act (Act 36 of 1998), a watercourse constitutes 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.*
Weeds and Invader Plants	*Weeds and invader plants are defined as undesirable plant growth that shall include, but not be limited to all declared category 1, 2 and 3 listed invader species as set out in the Conservation of Agricultural Resources Act (No 43 of 1983) regulations. Other vegetation deemed to be invasive should be those plant species that show the potential to occupy in number, any area within the defined construction area*

1 PURPOSE OF THIS DOCUMENT

In 2015, the Department of Water and Sanitation (DWS) completed a technical feasibility study to determine long-term future water requirements in KwaZulu-Natal (KZN). The study investigated the uMkhomazi Water Project – Phase One (uMWP-1), which will augment the Mgeni Water Supply System (MWSS) with water from the uMkhomazi River. The uMWP-1 consists of Raw Water and Potable Water components, which DWS and uMngeni-uThukela Water (UUW) are undertaking, respectively. The implementation of the uMWP-1: Raw Water Component involves storing and transferring about 220 million cubic metres per annum (m^3/a) of raw water through Smithfield Dam and its associated infrastructure (relevant to this report) and the Water Conveyance Infrastructure.

The Environmental Impact Assessments (EIAs) for the various components of the uMWP-1 were completed in accordance with the process prescribed in the previous EIA Regulations of 2010 (Government Notice [GN] No. R. 543 of 18 June 2010), which were promulgated under the National Environmental Management Act (Act No. 107 of 1998) (NEMA).

The following Environmental Authorisations (EAs) were granted by the former Department of Environment, Forestry and Fisheries (DEFF), which is now known as the Department of Forestry, Fisheries and the Environment (DFFE), for uMWP-1:

1. uMWP-1: Raw Water Component – Construction of Smithfield Dam and Associated Infrastructure –
    a. Original EA (ref no.: 14/12/16/3/3/3/94) (**the "EA"**) granted in November 2020 – refer to copy contained in **Annexure A1**; and
    b. Amended EA (ref no.: 14/12/16/3/3/3/94/AM2) (**the amended "EA"**) granted in September 2021 – refer to copy contained in **Annexure A2** (relevant to this Report).
2. uMWP-1: Raw Water Component – Water Conveyance Infrastructure –
    a. Original EA (ref no.: 14/12/16/3/3/3/94/1) granted in November 2020; and
    b. Amended EA (ref no.: 14/12/16/3/3/3/94/1/AM2) granted in September 2021.
3. uMWP-1: Potable Water Component – Construction of Water Treatment Works and Potable Water –
    a. Original EA (ref no.: 14/12/16/3/3/3/95) granted in November 2020; and
    b. Amended EA (ref no.: 14/12/16/3/3/3/95/AM2) granted in September 2021.

An EA was also granted by the former Department of Mineral Resources and Energy (DMRE), which is now known as the Department of Mineral and Petroleum Resources (DMPR), in January 2019 for the uMWP-1: Raw Water Component – Quarries and Borrow Pits (ref no.: KZN30/5/1/1/2/00142BP).

The Minister of Water and Sanitation appointed the Trans-Caledon Tunnel Authority (TCTA) as the implementing agent for the uMWP-1 Raw Water Component. Whilst DWS will remain the Applicant for the development, TCTA, through the transfer of responsibility under the directive, will be the

accountable authority for implementing the conditions of the EAs and the requirements of the relevant Environmental Management Programme (EMPr) and Closure Plan.

TCTA appointed AECOM SA (Pty) Ltd (AECOM) (the Consultant) as the Professional Service Provider for the uMWP-1: Smithfield Dam and Associated Infrastructure. AECOM is responsible for tender design and documentation, detailed design, construction supervision, project management, and project close-out. Nemai Consulting (Pty) Ltd is working under AECOM as the Environmental Consultants for the **uMWP-1: Raw Water Component – Smithfield Dam and Associated Infrastructure** (the Project).

In accordance with Condition 14 of the amended EA, the EMPr submitted as part of the EIA process was approved for preparatory construction work only. This enabled activities such as geophysical and geotechnical investigations and other baseline studies required to inform the detailed design of the Project.

This document serves as the draft EMPr and Closure Plan for the construction and operational phases of Smithfield Dam and its associated infrastructure. In accordance with Conditions 14 and 15 of the amended EA, this EMPr and Closure Plan provides the framework for the following site-specific plans that will be prepared and submitted separately for approval by DFFE:

1. Biodiversity Offset and Compensation Plan;
2. Search, Rescue and Relocation Plan;
3. Habitat Rehabilitation and Restoration Plan; and
4. Storm Water Management Plan.

In terms of Regulation 19(5) of the EIA Regulations of 2014, as amended (the "EIA Regulations"), "a closure plan is required where the application for an environmental authorisation relates to the closure of a facility." The EA for the Project includes a listed activity associated with the decommissioning of bulk fuel storage areas following the construction phase. Closure of existing infrastructure that becomes redundant as a result of the Project, including roads, bridges, etc., may also be applicable. Accordingly, this EMPr incorporates a Closure Plan to guide the decommissioning and closure of these facilities and infrastructure and to manage any associated environmental impacts.

The EMPr and Closure Plan contain the management requirements that emanated from the EIA Process against which the Contractor's and Operator's environmental performance needs to be measured. The EMPr and Closure Plan must be read in conjunction with the final EIA Report and associated Addenda, the EA, the Amended EA and all supporting documents emanating from these documents.

This draft EMPr and Closure Plan will be lodged for public review from **11 November 2026 until 11 December 2026** to registered Interested and Affected Parties (I&APs). All comments received

on the draft document will be contained in the final version that will be submitted to DFFE for decision-making.

2 DOCUMENT ROADMAP

As a minimum, this document aims to satisfy the following requirements:

- EMPr – Appendix 4 of the EIA Regulations of 2014 (as amended); and
- Closure Plan – Appendix 5 of the EIA Regulations of 2014 (as amended).

Table 1 below presents the document composition in terms of these regulatory requirements.

Furthermore, this EMPr and Closure Plan was compiled in compliance with the related conditions in the EA and the amended EA.

Table 1: EMPr and Closure Plan Roadmap in relation to Appendix 4 and Appendix 5 of the EIA Regulations

Chapter	Title	Appendix 4 of the EIA Regulations		Appendix 5 of the EIA Regulations	
1	**Purpose of this Document**	–		–	
2	**Document Roadmap**	–		–	
3	**Project Background and Motivation**	–		–	
4	**Project Overview**	–		–	
5	**Environmental Assessment Practitioner**	1(a)	Details of – (i) the Environmental Assessment Practitioner (EAP) who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including curriculum vitae.	1(a)	Details of – (i) the EAP who prepared the closure plan; and (ii) the expertise of that EAP.
6	**EMPr & Closure Plan Framework**	–		–	
7	**Environmental Governance Framework**	–		–	
8	**Roles & Responsibilities**	1(i)	An indication of the persons who will be responsible for the implementation of the impact management actions.	–	
9	**Monitoring and Auditing**	1(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f).	–	
		1(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f).	–	
		1(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f).	1(c)	Proposed mechanisms for monitoring compliance with and performance assessment against the closure plan and reporting thereon
		1(l)	A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations.	–	

Chapter	Title	Appendix 4 of the EIA Regulations		Appendix 5 of the EIA Regulations	
10	**EMPr & Closure Plan Review**	–		–	
11	**Environmental Activities, Aspects and Impacts**	1(b)	A detailed description of the aspects of the activity that are covered by the final environmental management plan.	–	
12	**Sensitive Environmental Features**	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.	–	
13	**Environmental Management Plans for the Project**	1(d)	A description of impact management outcomes, 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 – (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and in the case of a closure activity, closure; and (v) where relevant, operation activities.	1(b)	Closure objectives
				1(d)	Measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity and associated closure to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including a handover report, where applicable.
				1(e)	Information on any proposed avoidance, management and mitigation measures that will be taken to address the environmental impacts resulting from the undertaking of the closure activity.
		1(f)	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) and (e) will be achieved, and must, where applicable, include actions to - (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	1(f)	A description of the manner in which it intends to— (i) modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation during closure; (ii) remedy the cause of pollution or degradation and migration of pollutants during closure; (i) comply with any prescribed environmental management standards or practices; and comply with any applicable provisions of the Act regarding closure.

Chapter	Title	Appendix 4 of the EIA Regulations		Appendix 5 of the EIA Regulations	
			(ii) comply with any prescribed environmental management standards or practices; and (iii) comply with any applicable provisions of the Act regarding closure, in the case of a closure activity.	1(h)	The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of closure
		1(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented.	1(g)	Time periods within which the measures contemplated in the closure plan must be implemented.
		1(l)	A programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations.	–	
13.1.15	**Environmental Awareness and Training**	1(m)	An environmental awareness plan describing the manner in which - (ii) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and risks must be dealt with in order to avoid pollution or the degradation of the environment.	–	
To be included as an Annexure to the final EMPr and Closure Plan		–		1(i)	Details of all public participation processes conducted in terms of regulation 41 of the Regulations, including - (i) copies of any representations and comments received from registered interested and affected parties; (ii) a summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments; (iii) the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;

Chapter	Title	Appendix 4 of the EIA Regulations		Appendix 5 of the EIA Regulations	
					(iv) where applicable, an indication of the amendments made to the plan as a result of public participation processes conducted in terms of regulation 41 of these Regulations:
The conditions of the EA and amended EA have been integrated into the relevant sections of the EMPr and Closure Plan, ensuring that all applicable requirements of the competent authority are appropriately incorporated within the management programme. This approach promotes alignment between the EA and the EMPr and Closure Plan and provides a consolidated framework for environmental management and compliance.		1(n)	Any specific information that may be required by the competent authority	–	
N/A		2	Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.	–	

3 PROJECT BACKGROUND AND MOTIVATION

The Integrated MWSS's current water resources are insufficient to meet the system's long-term water requirements. The Integrated MWSS is the main water source supplying about five million people and industries in the eThekwini Municipality, uMgungundlovu District Municipality (DM), and Msunduzi Local Municipality (LM), which together comprise the economic powerhouse of KZN Province. The system comprises the Midmar, Albert Falls, Nagle and Inanda Dams in KZN, a water transfer scheme from the Mooi River and the Spring Grove Dam.

In 2015, DWS completed a Technical Feasibility Study to determine KZN's long-term water requirements. The study investigated the uMWP-1, which will augment the Integrated MWSS with water from the uMkhomazi River – the river with the third-largest mean annual runoff in KZN. The system's yield is 398 million m^3/a (2013), while the estimated water requirements are 612 million m^3/a in 2040. The water requirements projection indicated that the Integrated MWSS has been in deficit since 2016. Therefore, the system is under stress and will be augmented by uMWP-1.

The uMWP-1 consists of both Raw Water and Potable Water components, which DWS and UUW are undertaking, respectively. A simplified diagrammatic representation of the overall transfer scheme is provided in **Figure 1** below. As mentioned, the report only focuses on the construction and operational phases of the Smithfield Dam and its associated infrastructure that form part of the uMWP-1 Raw Water component. Smithfield Dam will be constructed on the uMkhomazi River, with a full supply level of 930 metres above sea level (masl).

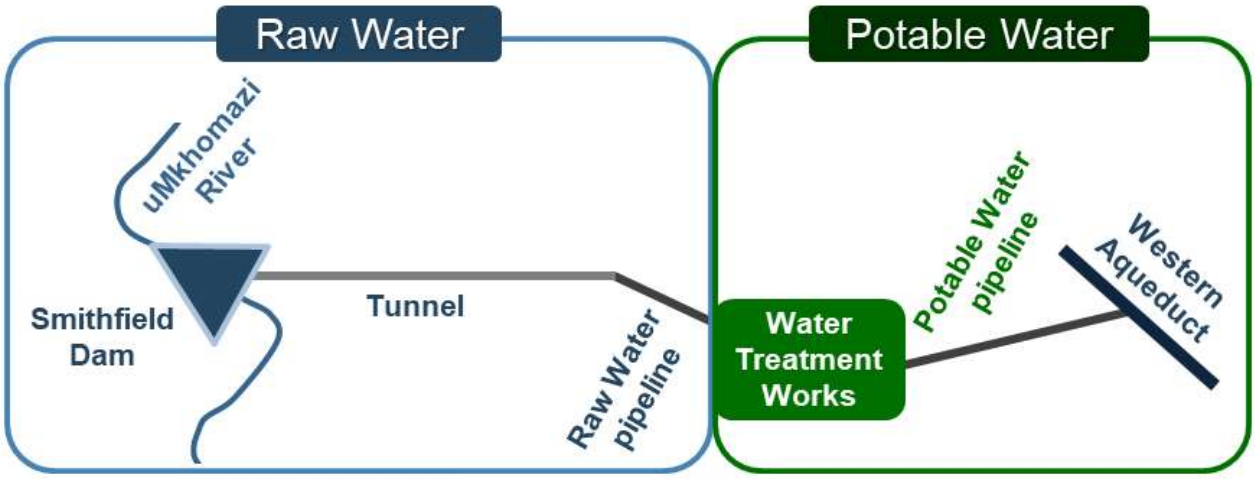

Figure 1: Simplified diagram of uMWP-1 components

4 PROJECT OVERVIEW

4.1 Project Location

The project area is situated in the southern part of KZN. The Smithfield Dam and the associated infrastructure fall within the uMgungundlovu DM and Impendle LM, as well as the Harry Gwala DM and Dr Nkosazana Dlamini Zuma LM. The Project site is situated along the R617, approximately 53 km southwest of Howick when travelling along the R617. The site is also located approximately 45 km southwest of Pietermaritzburg in a straight line. A locality map for Smithfield Dam is provided in **Figure 2** below.

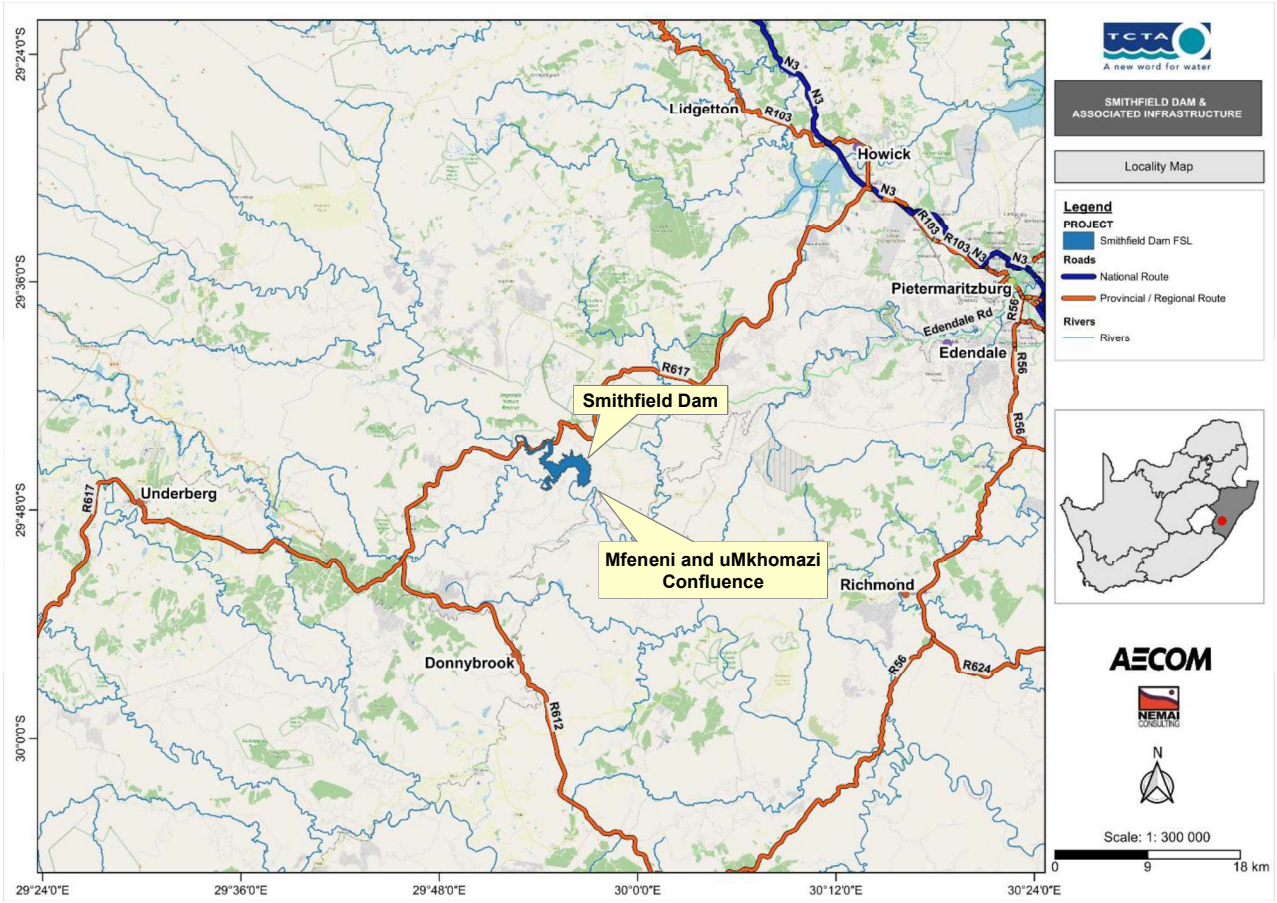

Figure 2: Locality map for Smithfield Dam
(*Note: no other project components are shown*)

The proposed Smithfield Dam is located approximately 2 kilometres (km) upstream from the confluence of the uMkhomazi and Mfeneni Rivers, along the middle reaches of the uMkhomazi River, midway between Lundy's Hill Bridge and Deepdale.

4.2 Project Description and Layout

The Project comprises Smithfield Dam and the associated infrastructure required for its construction and operation. **Table 2** provides a summary of the principal Project components and associated infrastructure, while **Table 3** presents the key technical details and design characteristics of Smithfield Dam and its associated structures as represented in the EA and assessed during the EIA process.

The EIA process for the Project was undertaken at the feasibility design level, and DFFE did not approve a final site layout. In accordance with Condition 13 of the EA and amended EA, a final site layout plan must be made available to registered I&APs for review and comment and subsequently submitted to DFFE for approval. The final site layout approval process therefore constitutes a separate regulatory process from the approval of the EMPr and Closure Plan.

The preferred layout for the Smithfield Dam and associated infrastructure as assessed during the EIA, which is the layout used to inform the mitigation measures of the EMPr and Closure Plan, is shown in **Figure 3** below. The Project area falls under the Traditional Authority and State Land. Traditional homestead settlements and rural subsistence agriculture characterise the area.

Table 2: A summary of the Project components

Raw Water Component	Associated Infrastructure
Smithfield Dam	1. Dam embankment 2. Saddle dam embankment 3. Spillway (including approach area and plunge pool) 4. Tunnel intake tower 5. Dam outlet works (including dam intake tower, tunnel and outlet valve house) 6. Deviation of the R617 7. Access road to Nonguqa 8. Access road to intake tower 9. Access road to tunnel inlet portal 10. Access road to dam wall 11. Construction roads 12. Relocation of power line 13. Relocation of telephone lines 14. Quarries and earthfill borrow areas 15. Substation 16. Operator's offices 17. Gauging weir 18. Access road to gauging weir 19. Hydropower plant 20. Spoil site - inlet 21. Construction and permanent housing

Table 3: Technical Details of the Project Components

Parameter	Description
General	
Name	Smithfield Dam

Parameter	Description	
Purpose	Bulk water supply	
River	uMkhomazi River	
Nearest town	Richmond	
District	KwaZulu-Natal	
Location	29°46'33.36" S; 29°56'26.62" E	
Classification: Category	III	
Size class	Large	
Hazard potential	High	
Non-overspill crest level	RL 936 masl	
Full supply level (FSL)	RL 930 m	
Gross storage capacity at FSL	220 million m³	
Water surface area at FSL	953 ha	
Dam Characteristics	**Main Wall**	**Saddle Wall**
Wall height above river level (max. height)	81 m (855 masl to 936 masl)	26 m (910 masl to 936 masl)
Type of dam wall	Earth core rockfill	Zoned earth fill
Crest length	1 200 m	1 090 m
Spillway type	Side channel	Fuse plug
Spillway form	Ogee	Broad crested
Spillway length	150 m	100 m
Freeboard	6 m	2 m
Hydrology and Floods		
Catchment area	2 058 km²	
Safety evaluation flood	5 650 m³/s	
Regional maximum flood	4 540 m³/s	
Q1:100	2 389 m³/s	
Q1:200	2 620 m³/s	
Outlet Works		
Dam Outlet	Dual pipe system of ND 1.8 m; 6 intakes; butterfly and gate valves	
Tunnel Inlet	Tri pipe system of ND 2 m; 6 intakes; butterfly and gate valves	
Description of dam wall foundations	The site comprises shales (mudrocks) with subordinate sandstones and intrusions of dolerite. Three near-horizontal dolerite sills have intruded mainly concordantly into the sedimentary strata and are responsible for the narrow river valley at the dam site and the presence of good quality rock for concrete aggregate and rockfill.	

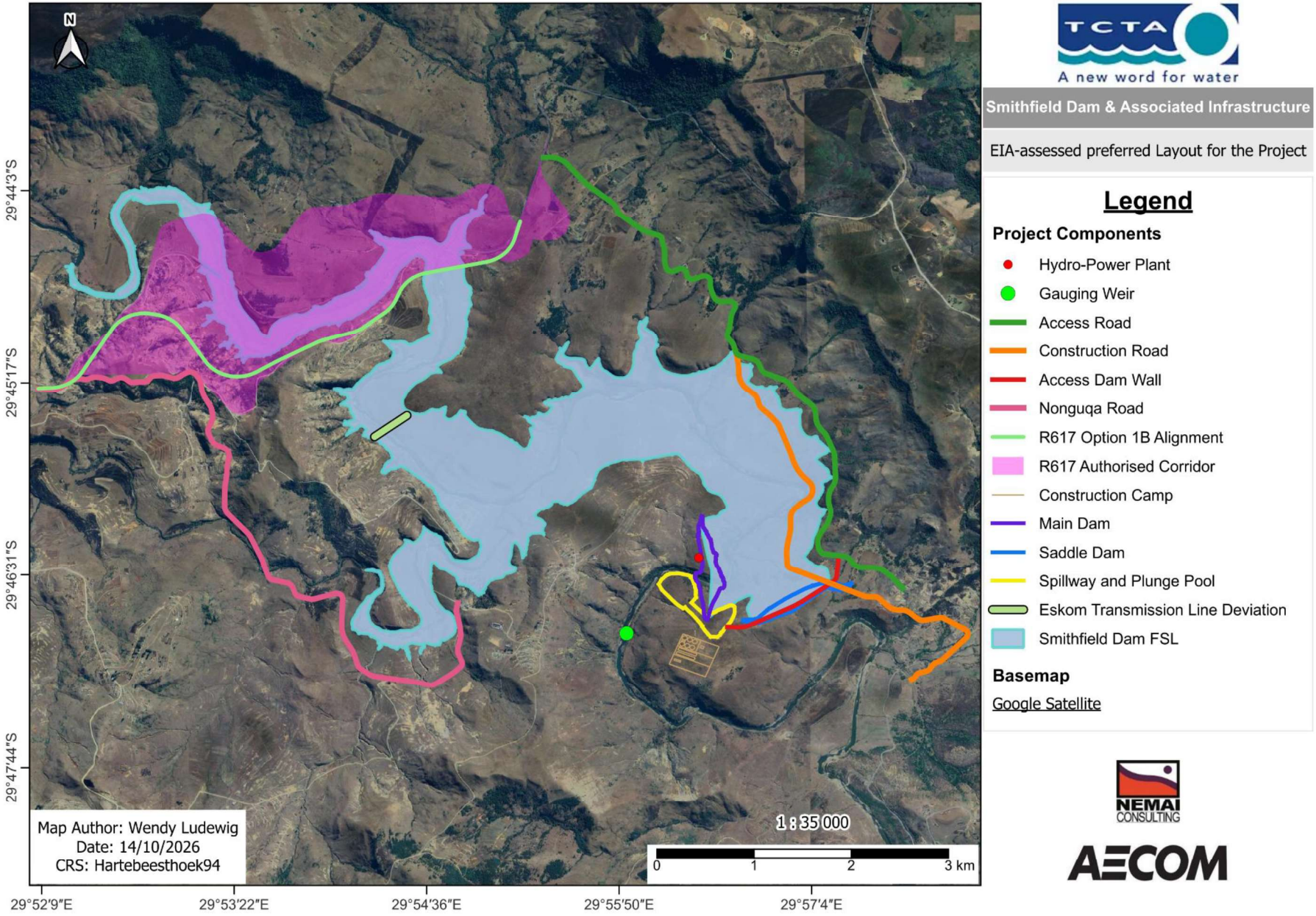

Figure 3: Original EIA-assessed layout that informs the mitigation measures contained in the EMPr and Closure Plan for the Project

The location of the project infrastructure was influenced by various factors, such as topography and associated elevation, impacts to the receiving environment, existing servitudes, existing structures and infrastructure, access, site constraints and geotechnical conditions (amongst others). From a technical perspective, a primary determinant in siting the infrastructure was ensuring the correct elevation to maintain a gravity-fed system.

5 ENVIRONMENTAL ASSESSMENT PRACTITIONER

The details of the registered Environmental Assessment Practitioner (EAP) are as follows:

Name of EAP: Donavan Henning from Nemai Consulting (Pty) Ltd
Qualifications: Master of Science (MSc) (River Ecology)
Registration: Registered EAP (Environmental Assessment Practitioners Association of South Africa (EAPASA) Reg. no. 2020/1217)
Professional Natural Scientist (South African Council for Natural Scientific Professions (SACNASP) Reg no: 400108/17).
Experience: 25 years

In terms of similar experience, the EAP has compiled EMPrs for various bulk water projects, including:

- Ncwabeni Off-Channel Storage and associated infrastructure, KZN;
- Foxwood Dam and associated infrastructure, Eastern Cape.
- Mokolo Crocodile West Water Augmentation Project, Limpopo Province;
- Lower uMkhomazi Bulk Water Supply Scheme, KZN;
- Vaal Gamagara Regional Water Supply Scheme Phase 2, Northern Cape; and
- Bulk water pipeline from Randfontein to Rustenburg, North-West.

The Curriculum Vitae of the EAP is contained in **Annexure B**.

6 EMPr & CLOSURE PLAN FRAMEWORK

The EMPr and Closure Plan provides performance criteria required to address potential environmental impacts associated with the construction and operation of the Smithfield Dam and its associated infrastructure.

The scope of the EMPr and Closure Plan includes the following:

- To provide the environmental legislative framework that governs the activities associated with the Project;
- To outline the roles and responsibilities for implementing the EMPr and Closure Plan;
- To provide environmental monitoring requirements;

- To establish management objectives associated with the activities associated with the Project, in order to enhance benefits and manage (i.e., prevent, reduce, rehabilitate and/or compensate) adverse environmental impacts;
- To provide targets for management objectives, in terms of desired performance; and
- To describe actions required to achieve management objectives and targets.

The requirements of the related conditions in the EA and amended EA (**Annexure A**) have also been incorporated into the body of the EMPr and Closure Plan, as relevant.

The EMPr and Closure Plan constitute the overarching management programme for the construction and operational phases of Smithfield Dam and its associated infrastructure. Certain environmental approval processes associated with refinements to the Project layout arising from the ongoing tender design and documentation process remain underway. The EMPr and Closure Plan will serve as the primary management programme for these processes and will be supplemented, where necessary, by environmental management requirements specific to the scope of the relevant environmental assessments. It is envisaged that such additional requirements will be incorporated as addenda to the EMPr and Closure Plan and read in conjunction with it.

The overall uMWP-1: Raw Water Component includes Earthfill Borrow Areas and Quarries that were authorised by DMPR, including a separate approved EMPr and Closure Plan. Given that the Earthfill Borrow Areas and Quarries are situated within the broader project footprint and construction area, it is accepted that there is an interface between the activities covered by the EMPr and Closure Plan and those regulated through the EMPr and Closure Plan applicable to the Earthfill Borrow Areas and Quarries.

7 ENVIRONMENTAL GOVERNANCE FRAMEWORK

7.1 Environmental Legislation

All activities associated with the construction and operation of the Project will be undertaken in accordance with recognised industry best practices and will include measures prescribed in the EMPr and Closure Plan. The EMPr and Closure Plan is legally binding under environmental legislation. As such, the EMPr and Closure Plan, and all environmental statutory requirements, will form part of the contract documents for any service provider appointed to undertake activities related to the Project (see **Section 8** below), and will inform the service provider of their duties in the fulfilment of the EMPr and Closure Plan, with particular reference to the mitigation of environmental impacts.

Furthermore, all activities associated with the Project will comply with all relevant South African legislation. The Contractors' conditions will include all environmental statutory requirements.

Specific environmental legislation that must be complied with includes, but is not necessarily limited to the following:

- National legislation –
  - The Constitution of the Republic of South Africa (No. 108 of 1996);
  - NEMA and the EIA Regulations;
  - National Water Act (Act No. 36 of 1998);
  - National Environmental Management: Waste Act (Act No. 59 of 2008);
  - National Environmental Management: Air Quality Act (Act No. 39 of 2004);
  - National Environmental Management: Biodiversity Act (Act No. 10 of 2004) as well as the Threatened or Protected Species Regulations (2007) and Alien and Invasive Species Regulations (2020);
  - National Environmental Management: Protected Areas Act (Act No. 57 of 2003);
  - National Forests Act (Act No. 84 of 1998);
  - National Veld and Forest Fire Act (Act No. 101 of 1998);
  - Environmental Conservation Act (Act No. 73 of 1989);
  - Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) and Mineral and Petroleum Resources Development Regulations (2004);
  - National Heritage Resources Act (Act No. 25 of 1999);
  - Conservation of Agricultural Resources Act (Act No. 43 of 1983);
  - Mine Health and Safety Act (Act No. 29 of 1996);
  - Occupational Health and Safety (OHS) Act (Act No. 85 of 1993) and Construction Regulations (2014);
  - Hazardous Substances Act (Act No. 15 of 1973);
  - Animal Protection Act (Act No. 71 of 1962); and
  - Explosives Act (No. 15 of 2003) and Explosives Regulations, 2024 (GN R5048 of 2024), as amended.
- Provincial legislation –
  - KZN Nature Conservation Management Act (Act No. 9 of 1997); and
  - KZN Amafa and Research Institute Act (Act No. 05 of 2018).

The various forms of environmental approvals associated with the overall uMWP-1: Raw Water Component are listed in **Table 4** below

Table 4: Environmental approvals related to the overall uMWP-1: Raw Water Component

Description	Legal Reference	Competent Authority
The following EAs were granted for uMWP-1: Raw Water Component: • Smithfield Dam and associated infrastructure (ref. no.: 14/12/16/3/3/3/94) – EA granted on 18 November 2020, and an amendment to the EA was granted in September	• National Environmental Management Act (Act No. 107 of 1998) • EIA Regulations	DFFE

Description	Legal Reference	Competent Authority
2021 (ref. no.: 14/12/16/3/3/3/94/AM2); and • Water conveyance infrastructure (ref. no.: 14/12/16/3/3/3/94/1) – EA granted on 19 November 2020, and an amendment to the EA was granted in September 2021 (ref. no.: 14/12/16/3/3/3/94/1/AM2).		
EA (ref. no.: KZN30/5/1/1/2/00142BP) granted in January 2019 for the Earthfill Borrow Areas and quarries for Smithfield Dam and associated infrastructure.	• National Environmental Management Act (Act No. 107 of 1998) • EIA Regulations	DMPR
The overall uMWP-1 Raw Water Component entails the following activities that constitute water uses in terms of Section 21 of the National Water Act (Act No. 36 of 1998): • Section 21(a) - Taking water from a water resource; • Section 21(b) - Storing water; • Section 21(c) - Impeding or diverting the flow of water in a watercourse; • Section 21(i) - Altering the bed, banks, course or characteristics of a watercourse; and • Section 21(g) - Disposing of waste in a manner which may detrimentally impact on a water resource.	National Water Act (Act No. 36 of 1998)	DWS / Pongola-uMzimkhulu Catchment Management Agency (PUCMA)
Licence to be obtained if protected trees are to be cut, disturbed, damaged, destroyed or removed.	National Forests Act (Act No. 84 of 1998)	DFFE
Permits to be obtained if heritage resources are to be impacted and for the removal of graves. In terms of Chapter 8 of the KZN Amafa and Research Institute Act (Act No. 05 of 2018), the following heritage resources are afforded general protection: • Section 37(1)(a) - Structures older than 60 years; • Section 38 - Graves of victims of conflict: • Section 39(1)(a) - Traditional burial places; and • Section 40(1) - Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.	• National Heritage Resources Act (Act No. 25 of 1999) • KZN Amafa and Research Institute Act (Act No. 05 of 2018)	KZN Amafa and Research Institute (Amafa)
Permits to be obtained for the removal, relocation or destruction of any protected or endangered plant and animal species that cannot be accommodated within the development footprint. All relevant permits must be obtained from the competent authority and submitted to DFFE for record-keeping	• National Environmental Management: Biodiversity Act (Act No. 10 of 2004) • KZN Nature Conservation Management Amendment Act (Act No 5 of 1999) • Natal Nature Conservation Ordinance (15 of 1974) • Amendment 12 to Condition 36 of the Smithfield Dam and Associated Infrastructure DFFE EA (ref. no.: 14/12/16/3/3/3/94).	Ezemvelo KZN Wildlife (EKZNW)
Permits required for blasting.	• Explosives Act, 2003 (Act 15 of 2003)	SAPS Explosives

Description	Legal Reference	Competent Authority
	• Explosives Regulations, 2024 (GN R5048 of 2024, Government Gazette 50960 of 23 July 2024), as amended	
A permit may be issued, subject to permit conditions, for the transfer of a specimen of an alien or listed invasive species from one freshwater system in which it occurs to another freshwater system in which it does not occur through a state inter-basin transfer scheme.	Alien and Invasive Species Regulations, 2020 (GN R1020, GG 43735, 25 September 2020)	DFFE

Additional legal requirements include the following:

- All waste (general and hazardous) generated during the construction phase may only be disposed of at appropriately licensed sites in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008);
- Hazardous substances must be stored and handled in accordance with the appropriate legislation and standards, which include the Hazardous Substances Act (Act No. 15 of 1973), the OHS Act (Act No. 85 of 1993), relevant associated Regulations, and applicable South African National Standard (SANS) and international standards;
- The storage of general or hazardous waste in a waste storage facility must comply with the norms and standards in GN No. R. 926 of 29 November 2013;
- Construction Regulations (2014) published under the OHS Act (Act No. 85 of 1993) apply to construction activities including “the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work”. A “health and safety plan” which addresses hazards identified, and includes safe work procedures to mitigate, reduce or control the hazards identified, is required under this Act; and
- DWS must comply with all its legal obligations as part of the land acquisition for the construction and operation of the Project.

7.2 Specific Requirements

The EMPr and Closure Plan focus on performance criteria for environmental compliance, while the Project Specification provides details on how the project will meet these criteria through minimum standards and measures to be implemented by the Contractor. The Contractor will provide detailed method statements on how the performance criteria will be met. The Consultant will review and approve these methods to ensure they are adequate. Method statements are not subject to approval by DFFE unless required by the EA, the EMPr and Closure Plan or written direction from DFFE. The Consultant may monitor method statements to the extent necessary to verify that the proposed and implemented methods comply with the approved EMPr and Closure Plan, EA and applicable environmental approvals. Approval of a method statement by the Consultant does not authorise any activity that is inconsistent with an environmental approval or the approved EMPr and Closure Plan.

8 ROLES & RESPONSIBILITIES

8.1 Institutional Arrangements

A high-level outline of the institutional arrangements for the implementation of the EMPr and Closure Plan, as well as the conditions of the EA, for the Project is provided in **Figure 4** below.

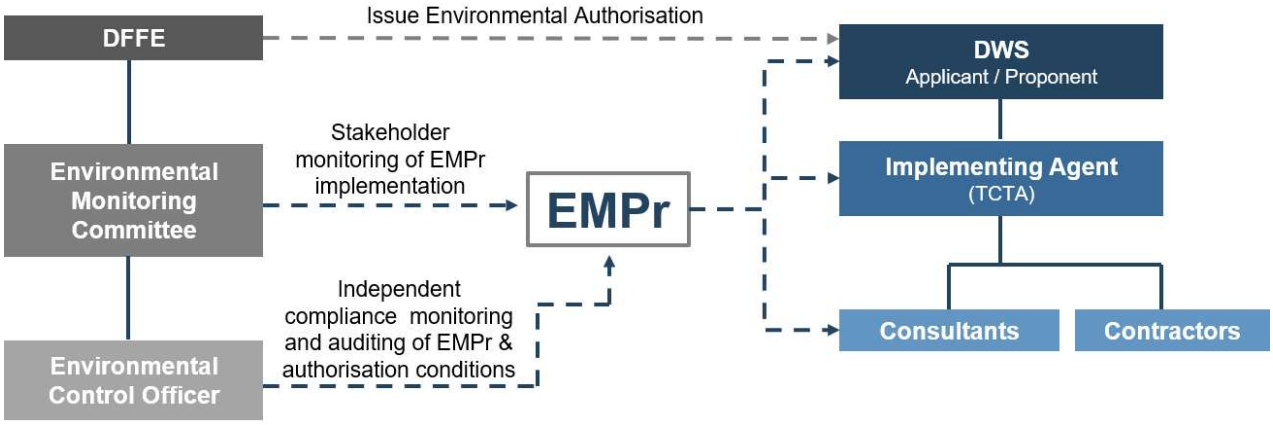

Figure 4: Institutional Arrangements: Roles & Responsibilities

8.2 DFFE

DFFE is the competent authority in terms of NEMA and granted the EA for the uMWP-1: Raw Water Component - Smithfield Dam and Associated Infrastructure. DFFE is also responsible for approving the EMPr and Closure Plan for the Project's Construction and Operation phases.

DFFE also fulfils a compliance and enforcement role for the EA. This Department may perform random inspections to check compliance. DFFE will also serve as an active member of the Environmental Monitoring Committee (EMC) and will review the monitoring and auditing reports compiled by the ECO.

Future amendments to the EA or the EMPr and Closure Plan may be required, based on adaptive management to site conditions and the Project's technical requirements. DFFE must approve these amendments.

8.3 DWS

In accordance with the conditions of the EA and amended EA, the holder of the EA is responsible for ensuring compliance with the conditions contained in the EA. This includes any person acting

on the holder's behalf, including but not limited to an agent, servant, contractor, sub-contractor, employee, consultant or any person rendering a service to the holder of the EA.

As the applicant in terms of NEMA, DWS remains the EA holder and retains the legal responsibilities associated with the EA. DWS appointed TCTA as the implementing agent for the uMWP-1: Raw Water Component through a Ministerial Directive issued in May 2018, authorising TCTA to fund and implement the uMWP-1: Raw Water Component. In this capacity, TCTA is responsible for the day-to-day implementation of the Project, including implementation of the EA conditions and the EMPr and Closure Plan. Following handover of the infrastructure, DWS will be responsible for implementing the environmental management requirements applicable to the operational phase.

8.4 TCTA

TCTA is a state-owned entity, established by GN No 2631 of 12 December 1986 for "the implementation, operation and maintenance of the project works within South Africa" under the Treaty that governs the Lesotho Highlands Water Project (LHWP). Today, TCTA has grown into a specialised liability management body set up to finance and oversee the creation of bulk raw water infrastructure for the National Government on behalf of the people of South Africa.

TCTA is the implementing agent for the development, as directed by the Minister of Water and Sanitation. The responsibility for environmental compliance rests with the TCTA

TCTA will comply with all applicable laws, regulations, standards and guidelines and will ensure that all professional service providers/contractors accept the responsibility to do likewise. The EMPr and Closure Plan together with the EA and approved amendments will therefore form part of any contract between TCTA and its service providers appointed to undertake the Project's activities.

8.5 Environmental Control Officer

In accordance with Condition 22.2 of the EA, the holder of the EA must ensure that the name and contact details of the ECO are made available to the DFFE Director: Compliance Monitoring upon appointment.

The role of the ECO, who is appointed by TCTA, is primarily to act as an independent monitor on behalf of DFFE and the EMC for the implementation of the Project in accordance with the requirements of the EA and the approved EMPr and Closure Plan.

The role and function of the ECO is to:

- Conduct third-party monitoring and auditing;

- Regularly monitor and review the progress towards achieving the specific strategies, objectives and performance targets of the EMPr and Closure Plan;
- Independently verify that mitigation measures and conditions in the EMPr and Closure Plan are being applied;
- Conduct regular site inspections and issue inspection reports;
- Review monitoring data and evaluate against performance targets;
- Provide independent reporting to DFFE on compliance with the EA and the EMPr and Closure Plan;
- After consulting with TCTA and the EMC, inform decision-making authorities of non-compliance with the EA's conditions;
- Undertake periodic formal auditing of the EMPr and Closure Plan compliance;
- In terms of the EMC, the functions of the ECO will include:
    - Acting as the Secretariat to the EMC by providing logistical and organisational support;
    - Preparing minutes of EMC meetings and distributing them to members; and
    - Providing independent professional advice to the EMC in executing its functions.

Condition 22 of the EA also specifies the following:

- The ECO must be appointed before commencement of any authorised activities;
- The ECO must keep a record of all activities on site, problems identified, transgressions noted, and a task schedule of tasks undertaken by the ECO; and
- The ECO must remain employed until all rehabilitation measures outlined in the implementation and restoration plans are fully implemented.

As an independent consultant, the ECO is not responsible for:

- EMPr and Closure Plan implementation;
- Primary environmental data collection, monitoring and analysis; and
- Resolving complaints by I&APs.

The ECO is not accountable for implementing the EA nor the EMPr and Closure Plan, and is also not linked to the project authorities or the Contractor. Therefore, the ECO does not have the authority to:

- Make project-related decisions;
- Issue instructions to the Contractor;
- Stop the construction works; or
- Demand the implementation of specific mitigation and/or corrective measures from the Contractor.

It is important to clarify that the ECO will be appointed for the overall uMWP-1: Raw Water Component - Smithfield Dam and Associated Infrastructure Project, not solely for the DFFE-authorised activities. As part of their broader role, the ECO will also act as an independent monitor for DMPR in accordance with the requirements of the DMPR EA and EMPr and Closure Plan.

Furthermore, it is envisaged that a consolidated ECO report will be compiled to satisfy the compliance and reporting obligations of both the DFFE and DMPR EAs.

The ECO will be appointed before commencement of construction activities and will remain employed until the defects liability period has ended.

8.6 Environmental Monitoring Committee

An EMC will be established before commencement of any construction activities and will serve as an additional mechanism for monitoring implementation of the EMPr and Closure Plan and compliance with the EA, as well as improving communication among key stakeholders. The committee will have an advisory, monitoring and "watchdog" role for the duration of the overall construction phase of uMWP-1: Raw Water Component, which will include the Project. This committee will report to DFFE and DMPR.

Appropriate Terms of Reference (ToR) will be prepared for the EMC to address the following (amongst others):

- Mandate of the EMC;
- EMC membership;
- EMC meetings;
- Chairperson's responsibilities;
- Purpose of the EMC;
- Principles for effective functioning of the EMC;
- Consent;
- Responsibility of TCTA;
- Communication channels;
- Amendment of the ToR of the EMC;
- Conflict of interest;
- Code of ethics; and
- Adoption.

Condition 16 of the EA and the amended EA include the following requirements of the EMC:

- The EMC must be established before commencement of the construction activities;
- The EMC must meet before commencement of construction activities (to appoint a chairperson and discuss terms of reference); thereafter, the EMC must meet once every two months and/or quarterly (depending on the circumstances and in agreement with DFFE);
- The EMC will consist of, *inter alia*, representatives from all Departments that have jurisdiction over the area, relevant organs of state and key stakeholders identified during the public participation process, including the ECO;
- The EMC will be responsible for:

- The ongoing and continuous development of the EMPr and Closure Plan applicable to the development;
- Monitoring adherence and compliance with the approved EMPr and Closure Plan; and
- Making necessary amendments to the operational EMPr and Closure Plan as and when required.

- ❑ The EMC will submit the recommendations and mitigation measures to DFFE for approval. Once approved, the EMPr and Closure Plan must be implemented and adhered to; and
- ❑ The EMC must remain functional until all rehabilitation measures outlined in the habitat rehabilitation plans are fully implemented. The EMC will not be functional during the long-term operation and maintenance of the ecosystems and biodiversity offsets.

8.7 Contractor

TCTA appoints the Contractor to undertake the construction activities associated with the Project as specified in the Contract. To meet the requirements of the EMPr and Closure Plan, the Contractor must ensure it has a clear understanding of all environmental matters relating to the Project.

The responsibilities of the Contractor will include:

- ❑ The implementation of and adherence to the requirements of the EA and EMPr and Closure Plan;
- ❑ To ensure all sub-contractors under their supervision adhere to the applicable requirements of the EMPr and Closure Plan;
- ❑ Report any non-compliance event that constitutes an emergency immediately and in line with the protocol applicable to that particular emergency event;
- ❑ To ensure that all employees and sub-contractors attend the Environmental Awareness Training and subsequent refresher training, and are familiar with or made aware of the contents of the EA and EMPr and Closure Plan; and
- ❑ To conduct any remedial work required in terms of the EA and EMPr and Closure Plan, as a result of environmental negligence, mismanagement, and/or non-compliance.

The Environmental Officer (EO) and Social Officer (SO) are part of the Contractor's staff and are responsible for all activities related to the day-to-day on-site implementation of the EMPr and Closure Plan and compliance with the environmental specifications, and for the compilation of regular (daily, weekly and monthly) Monitoring Reports for the Consultant. The EO and SO must liaise with the Consultant on all environmental and related issues, as needed, and ensure that any public complaints are properly recorded and addressed. The EO and SO must:

- ❑ Be well versed in environmental matters;
- ❑ Understand the relevant environmental legislation and processes;
- ❑ Understand the hierarchy of environmental compliance reporting, and the implications of non-compliance;

- ❑ Know the background of the Project and understand the implementation programme;
- ❑ Be able to resolve conflicts and make recommendations (to the Contractor) in terms of the requirements of the EMPr and Closure Plan;
- ❑ Keep accurate and detailed records of all EMPr and Closure Plan-related activities on site;
- ❑ Keep the following on file -
  - Material Safety Data Sheets (MSDSs) for all hazardous material stores;
  - Waste disposal certificates; and
  - Training registers.
- ❑ Arrange the presentation of environmental awareness training courses/toolbox talks to all site staff, contractors and sub-contractors, and monitor the environmental awareness training for all new site personnel employed by the Contractor; and
- ❑ Advise on rectifying any pollution, contamination, or damage to the project site, rights of way, and adjacent land.

8.8 Consultant

The Engineer (i.e. the Consultant) is appointed by TCTA to design the works and supervise construction. The Consultant carries a direct responsibility for the effective implementation of the environmental management requirements detailed in the EMPr and Closure Plan.

The Environmental Monitor (EM) and Social Monitor (SM) are part of the Consultant's staff and are responsible for the day-to-day monitoring of construction activities in relation to their compliance with the EMPr and Closure Plan, EA and the Employer Requirements (as per the FIDIC contract), and relevant specifications. The EM and SM must ensure that complaints related to the physical and social environment received from the public are recorded in the complaints register, investigated, referred to the responsible party where corrective action is required, and tracked through to resolution and close-out.

The EM and SM must:

- ❑ Be well-versed in environmental management matters;
- ❑ Understand the relevant environmental legislation and processes;
- ❑ Understand the hierarchy of environmental compliance reporting and the implications of non-compliance;
- ❑ Know the background of the project and understand the implementation programme;
- ❑ Be able to identify issues and make recommendations in terms of the environmental management requirements;
- ❑ On a monthly basis, undertake internal audits to gauge compliance with environmental legislation, the conditions of the EA, the EMPr and Closure Plan, and the specifications;
- ❑ Submit the findings of internal audits to the Consultant and the Contractor;
- ❑ Keep accurate and detailed records of all EMPr and Closure Plan-related activities on site;

- Check that the Contractor keeps all the permits and certificates on site as required by the EMPr and Closure Plan;
- Advise on rectifying any pollution, contamination or damage to the project site, rights of way or adjacent land;
- Must review the contractor's environmental and social method statements and/or protocols identified in this document; and
- Ensure that the Consultant is made aware of all applicable DFFE-approved changes to the EMPr and Closure Plan.

More specifically, the EM should maintain the following on site:

- A daily site diary;
- A non-conformance register;
- A register of audits;
- Copies of method statements;
- Monitoring reports of the Contractor;
- Compliance and audit reports;
- Copies of the EA and the EMPr and Closure Plan; and
- Copies of all permits required during the construction phase.

More specifically, the SM will coordinate the complaint-management process and maintain the official complaints register.

8.9 Operator

Following handover of Smithfield Dam and the associated infrastructure, the Operator will be responsible for the day-to-day implementation of the operational requirements contained in the Operation and Maintenance Manual, and other applicable environmental approvals. This EMPr and Closure Plan will be used to inform the Operation and Maintenance Manual. DWS, as the Applicant, will remain accountable for environmental compliance during the operational phase unless this responsibility is legally transferred to another entity.

The responsibilities of the Operator will include:

- Implement and adhere to the environmental management actions and monitoring requirements applicable to the operational phase.
- Operate and maintain Smithfield Dam and the associated infrastructure in accordance with the approved operating rules, the Operation and Maintenance Manual, applicable authorisations and relevant legal requirements.
- Ensure that employees, contractors and service providers undertaking operational or maintenance activities are informed of and comply with the applicable environmental requirements.

- Undertake the operational environmental inspections and monitoring assigned to the Operator and facilitate monitoring by DWS and suitably qualified specialists, where required.
- Review monitoring results and implement appropriate corrective or adaptive management measures where non-compliance, adverse environmental trends or ineffective management measures are identified.
- Maintain accurate records of environmental monitoring, inspections, incidents, complaints, non-compliances, maintenance activities and corrective actions.
- Report environmental incidents and non-compliances to DWS and the relevant authorities, where required by legislation or an applicable authorisation.
- Implement appropriate emergency response and remedial measures in the event of pollution, abnormal releases, infrastructure failure, fire or any other incident that may result in environmental harm.
- Ensure that environmental complaints received from affected stakeholders are recorded, investigated and appropriately addressed.
- Facilitate environmental compliance inspections and audits and implement applicable corrective actions arising from monitoring, audit findings or authority instructions.
- Ensure that suitably qualified specialists are appointed where specialist monitoring, investigation or advice is required.
- Notify DWS where monitoring results, audit findings or operational changes indicate that an approved management plan or an operational procedure may be required.
- Ensure that all relevant environmental records, outstanding actions and responsibilities are formally transferred where there is a change in the appointed Operator.

9 MONITORING AND AUDITING

9.1 General

Monitoring is required to ensure the receiving environment is suitably safeguarded against the identified potential impacts, and that the environmental management requirements are adequately implemented and adhered to during the development. The monitoring and auditing requirements contained in this Section apply to the construction, rehabilitation and operational phases of the Project, as relevant.

A document control system will be established, which will include all documents required for the effective functioning of the EMPr and Closure Plan, such as (amongst others):

- EMPr and Closure Plan and EA (latest or updated documents);
- Method statements;
- Record of environmental incidents, non-conformances, training, audits, public complaints, etc.;
- Public complaints register; and
- Reports (e.g., monitoring, pre-construction surveys, etc.).

9.2 Pre-Construction Survey

A pre-construction survey, to be undertaken by the Contractor, which includes baseline monitoring, must be undertaken to determine the pre-construction state of the receiving environment for all areas during the contract period. It serves as a reference to measure residual project impacts by evaluating deviations from baseline conditions and the associated significance of adverse effects. The Contractor is responsible for undertaking the pre-construction survey.

A pre-construction survey will be conducted for all areas affected by the Project footprint. The survey will include the following:

- Site investigations by appropriate members of the project team and specialists (as relevant);
- Generate records from the survey which include site details, photographs, explanatory notes, etc. (as required);
- Record the condition of existing structures and infrastructure on the site; and
- Identify site-specific mitigation measures.

Pre-construction surveys, baseline monitoring and specialist investigations required by the EMPR and Closure Plan and associated management plans will be undertaken by suitably qualified specialists appointed by the Contractor.

9.3 Environmental Monitoring

Environmental monitoring entails monitoring at predetermined frequencies to determine whether applicable baseline values, thresholds, performance indicators, legal requirements and management targets are being met. Baseline information, including parameters and sampling localities, will inform the evaluation of environmental changes and trends associated with the construction and operational phases of the Project.

During construction, environmental monitoring will be undertaken by the Contractor, Consultant, ECO and appointed specialists, as applicable. During operation, environmental monitoring will be undertaken by DWS, the appointed Operator and suitably qualified specialists, as applicable.

Operational environmental monitoring will be implemented in accordance with the monitoring requirements contained in the relevant Operational Phase management sections of the EMPr and Closure Plan. These requirements include, where applicable, water resource and release monitoring, aquatic ecosystem monitoring, biodiversity and rehabilitation monitoring, alien invasive species monitoring, shoreline and sediment monitoring, fire management inspections, waste and hazardous substance inspections, social and stakeholder monitoring, and heritage resource monitoring.

The scope, parameters, monitoring locations, methods and frequencies will be determined by the EMPr and Closure Plan, the EA, Water Use Licence, approved management plans, the Operation and Maintenance Manual, specialist recommendations and other applicable legal or regulatory requirements.

Where environmental sampling, measurement or laboratory analysis is required, the environmental monitoring programme will make provision for the following, as applicable:

- Monitoring during normal construction activities, abnormal situations and emergency situations (e.g. unexpected spillage of hazardous substance);
- Measuring equipment must be accurately calibrated;
- Adequate quality control of the sampling must be ensured;
- Analysis is to be undertaken at a SANS 17025 certified laboratory;
- Certified methods of testing must be employed;
- Where legal specifications exist for testing and sampling methods, these must be taken into account; and
- Establish a process to identify and implement corrective measures.

Monitoring results will be reviewed against the applicable objectives, indicators, targets, baseline conditions, thresholds and legal requirements. Where monitoring identifies non-compliance, adverse environmental trends or ineffective management measures, the cause will be investigated, and appropriate corrective or adaptive management measures will be implemented and tracked to closure.

9.4 Compliance Monitoring and Auditing

Compliance monitoring will commence before the construction phase, when conditions in the EA that must be adhered to before project implementation will be checked and recorded, and compliance with the provisions in the EMPr and Closure Plan will be verified. Compliance monitoring will continue until the end of the defects liability period to check the performance of rehabilitation measures and whether the related objectives have been met.

The ECO should undertake weekly site inspections, monthly monitoring, and full compliance audits every two years, including an audit at the end of the construction period and one at the end of the defects liability period (if applicable), subject to any stricter EA conditions. Compliance audits with the EA and the EMPr and Closure Plan must be conducted in accordance with the EIA Regulations and any other applicable legislation. The aforementioned reports will be submitted to TCTA's Environmental Manager, EMC, DFFE and DMPR for their records.

Furthermore, the following requirements for monitoring and auditing, as stipulated in Conditions 23 to 28 of the EA, will be adhered to:

- Submit all compliance-, monitoring-, notification-, and audit-related documentation required in terms of the EA to the Director: Compliance Monitoring of the DFFE;
- The Holder of the EA will ensure that compliance with the EA and approved EMPr and Closure Plan is independently audited for the period during which the authorisation and EMPr and Closure Plan remain valid;
- Environmental audits will be undertaken at the frequency specified in the EMPr and Closure Plan and in accordance with Regulation 34 of the EIA Regulations;
- Submit an environmental audit report to DFFE within 30 days of completion of the construction phase (i.e. within 30 days of site handover), and submit a final environmental audit report within 30 days of completion of rehabilitation activities;
- All environmental audit reports will comply with Appendix 7 of the EIA Regulations and will include the date of the audit, details of the auditor, and findings on compliance with the conditions of the EA and the approved EMPr and Closure Plan; and
- Maintain records relating to compliance monitoring and environmental auditing on site and make them available to any relevant and competent authority upon request.

Following handover of the infrastructure, DWS will be accountable for environmental compliance monitoring during the operational phase. DWS or the appointed Operator will verify compliance with the applicable operational requirements of the EA, the EMPr and Closure Plan, the Water Use Licence, approved management plans, the Operation and Maintenance Manual and other applicable environmental approvals.

Operational compliance monitoring will cover the management actions and monitoring requirements contained in the relevant Operational Phase sections of the EMPr and Closure Plan. The frequency of operational inspections, monitoring and auditing will be determined by the applicable EA and Water Use Licence conditions, approved management plans, specialist monitoring programmes, the Operation and Maintenance Manual and relevant legal requirements.

Independent environmental audits will continue during the operational phase where required by the Operation and Maintenance Manual or applicable legislation. Audit reports will assess compliance with the applicable operational requirements and identify non-compliances, corrective actions, responsible parties and target completion dates.

Operational environmental incidents, complaints, non-compliances and corrective actions will be recorded and tracked to closure. Significant incidents and non-compliances will be reported to the relevant authority where required by legislation or applicable authorisations/approvals.

Operational monitoring and audit records will be retained and made available to DFFE and other relevant authorities upon request.

10 EMPr & CLOSURE PLAN REVIEW

Due to its dynamic nature, the EMPr and Closure Plan will be reviewed and revised when necessary to ensure continued environmental improvement.

Changes to the EMPr and Closure Plan may be required where the existing system:

- Does not make adequate provision for protecting the environment against the activities associated with the construction and operation of the Project;
- Needs to be modified to meet conditions of statutory approval;
- It is not achieving acceptable environmental performance;
- Requires changes due to the outcome of a monitoring or auditing event or management review;
- Provides redundant, impracticable or ineffective management measures; and
- Based on provisions in Regulation 34 of the EIA Regulations.

Future amendments to the EMPr and Closure Plan will be undertaken in accordance with Regulations 34 – 37 of the EIA Regulations (as applicable). All proposed amendments to the approved EMPr and Closure Plan will be screened by the holder of the EA, with advice from the EAP or ECO where appropriate, to determine the applicable process under Regulations 34 to 37 of the EIA Regulations. Administrative corrections that do not alter the scope, impact management outcomes, management actions, responsibilities or environmental risk may be recorded in the EMPr and Closure Plan amendment register, in discussion with the ECO and EMC. No amendment requiring approval under the EIA Regulations may be implemented before the applicable regulatory process has been completed and written approval has been obtained where required.

An amendment to the EMPr and Closure Plan does not authorise any activity, infrastructure component, layout change or project modification that requires a separate EA, amendment of an EA or any other approval in terms of applicable legislation. Where such approvals are required, the applicable regulatory process must be completed and the necessary approval obtained prior to implementation.

11 ENVIRONMENTAL ACTIVITIES, ASPECTS AND IMPACTS

In order to establish best management practices and prescribe mitigation measures for the receiving environment, the following project-related information needs to be adequately understood:

- **Activities** associated with the proposed Project;
- **Environmental aspects**, which are regarded as those components of the Project's activities that are likely to interact with the environment and cause an impact; and
- **Environmental impacts**, which are the changes to the environment resulting from an environmental aspect, whether desirable or undesirable.

The activities associated with the construction and operational phases of the Project, together with the corresponding environmental aspects and potential environmental impacts, are contained in the following tables below:

- **Table 5**: Construction- and operational-phase activities;
- **Table 6**: Associated environmental aspects; and
- **Table 7**: Potential environmental impacts.

Table 5: Activities associated with the construction and operational phases of the Project

Project Phase: Construction
Site Establishment
Site establishment
Land access and servitude clearance
Relocation of affected infrastructure and services
Vegetation clearing and grubbing
Topsoil stripping, stockpiling and management
Establishment of no-go areas and environmentally sensitive area controls
Establishment of construction camp
Establishment of laydown and stockpile areas
Bulk fuel storage and hazardous substance storage
Establishment of temporary site offices and facilities
Delivery of construction materials
Transportation of equipment, materials and personnel
Storage and handling of materials
Construction employment and workforce accommodation
Access and Transport Infrastructure
Construction of temporary construction access roads
Construction of temporary haul roads
Construction of permanent operational access roads
Upgrade and maintenance of existing access roads
Realignment of affected roads
Construction of internal dam access roads
Construction of watercourse crossings
Quarrying, Borrow Areas and Material Processing
Development and operation of quarries and borrow areas
Excavation and extraction of construction materials
Establishment and operation of crusher plants
Establishment and operation of concrete batching plants
Establishment and operation of materials testing laboratories
Storage and stockpiling of aggregates, sand, rockfill and construction materials
Dam and Associated Infrastructure Construction
Excavation and foundation preparation
Dewatering of excavations and work areas
Blasting activities
Construction of cofferdams
Construction and operation of river diversion infrastructure
Temporary river diversion works for watercourse crossings and gauging weir construction
Construction of the main dam embankment
Construction of the saddle dam embankment
Construction of spillway structures and chute works
Construction of the plunge pool
Construction of outlet works including intake tower
Construction of tunnel inlet and outlet structures
Construction of the gauging weir
Construction of associated hydraulic infrastructure
Concrete works

Steel works
Mechanical and electrical works
Supervisory Control and Data Acquisition and Instrumentation installations
Electrical supply infrastructure installation
Construction of Operators' housing, Project Control Room, Workshop, Garage, and services (including water supply, sanitation and stormwater)
Construction of Resettlement housing and associated infrastructure
Spoil and Waste Management
Construction of spoil disposal site
Waste management
Wastewater management
Hazardous material management
Spill prevention and response
Testing, Commissioning and Impoundment
Testing and commissioning of civil, mechanical and electrical infrastructure
Initial reservoir impoundment
Demobilisation of temporary construction infrastructure
High-Level Environmental Activities
Compliance monitoring against the EA, EMPr and Closure Plan and relevant environmental legislation
ECO monitoring and reporting
Ongoing consultation with I&APs
Convening of EMC meetings
Implementation of environmental monitoring plans (air quality, surface water, groundwater, noise, vibration, traffic and social environment)
Ongoing search, rescue and relocation of protected, endangered and medicinal plant species
Ongoing search, rescue and relocation of fauna where required
Ongoing management of heritage resources and graves in accordance with permit requirements
Implementation of the Search, Rescue and Relocation Plan
Implementation of the Storm Water Management Plan
Implementation of the Habitat Rehabilitation and Restoration Plan
Implementation of Biodiversity Offset requirements
Management of erosion and sediment control measures
Alien invasive species management
Rehabilitation and reinstatement of disturbed areas not permanently occupied by project infrastructure
Continued implementation of the Relocation Action Plan (RAP)
Monitoring and management of no-go areas and environmentally sensitive features
Closure and decommissioning of temporary and redundant infrastructure
Other activities as required by the EMPr and Closure Plan and EA conditions
Project Phase: Operation
Project Activities
Operation of Smithfield Dam and associated infrastructure
Reservoir management
Water storage and release management
Implementation of approved operating rules
Operation and maintenance of outlet works
Operation and maintenance of spillway structures
Operation and maintenance of the gauging weir
Operation and maintenance of electrical and mechanical infrastructure
Operation and maintenance of access roads and associated infrastructure
Dam safety inspections and monitoring
Sedimentation monitoring and management
Infrastructure maintenance and repairs
Ongoing consultation with directly affected parties
Compliance with the Operation and Maintenance Manual
High-Level Environmental Activities
Compliance monitoring against the EA, EMPr and Closure Plan and relevant environmental legislation
Water quality monitoring
Monitoring of Ecological Water Requirements (EWR)
Monitoring of shoreline and erosion processes
Firebreak establishment and maintenance
Alien invasive species control (terrestrial and aquatic)

Monitoring of rehabilitation success
Monitoring of RAP commitments
Waste and hazardous material management
Ongoing consultation with I&APs
Environmental auditing and reporting where required
Other activities as required by the Operational EMPr and Closure Plan phase

Table 6: Environmental Aspects associated with the construction and operational phases of the Project

Project Phase: Construction
Inadequate consultation with landowners/tenants/occupiers of land
Inadequate environmental and compliance monitoring
Lack of environmental awareness creation
Indiscriminate site clearing
Poor site establishment
Poor management of access and use of access roads
Inadequate provisions for working on steep slopes
Poor transportation practices
Poor fencing arrangements
Erosion
Disruptions to existing services
Disturbance of topsoil
Poor management of excavations
Inadequate storage and handling of material
Inadequate storage and handling of hazardous material
Poor maintenance of equipment and plant
Poor management of labour force
Pollution from ablution facilities
Inadequate management of construction camp
Poor waste management practices – hazardous and general (solid and liquid)
Wastage of water
Disturbance to landowners/tenants/occupiers of land
Poor management of pollution generation potential
Damage to significant flora
Damage to significant fauna
Influence on resource quality of the uMkhomazi River and its tributaries, from river diversions, in-stream works and activities in the riparian zones (and a buffer area of 50m)
Environmental damage where drainage lines are crossed
Environmental damage to sensitive areas
Disturbance or destruction of archaeological and cultural features
Disruption of cultural practices
Poor reinstatement and rehabilitation
Inadequate provisions for relocation of affected community members in dam basin
Project Phase: Operation
Inadequate consultation with landowners/tenants/occupiers of land
Inadequate environmental and compliance monitoring
Inadequate management of access, routine maintenance and maintenance works
Inadequate management of vegetation
Not satisfying the EWR
Release of poor quality water
Downstream erosion
Inadequate provisions for relocation of affected community members in dam basin

Table 7: Potentially Significant Environmental Impacts associated with the construction and operational phases of the Project

Environmental Factor	Potential Issues / Impacts
Construction Phase	

Environmental Factor	Potential Issues / Impacts
Land Use	• Loss of land used for subsistence agriculture and communal grazing within construction domain • Servitude restrictions
Climate	Greenhouse gas emissions
Geology	• Unsuitable geological conditions • Sourcing of construction material • Blasting • Disposal of high volume of spoil material
Topography	• Visual impact in river valleys • Erosion of affected areas on steep slopes
Soil	• Soil erosion • Soil contamination
Geohydrology	• High groundwater inflows • Lowering of groundwater levels • Groundwater pollution due to spillages and poor construction practices
Hydrology	Alteration of flow regimes
Water Quality	• Sedimentation from instream works • Water quality impacts due to spillages and poor construction practices
Aquatic Ecology	Disruptions to aquatic biota community due to water contamination, alteration of flow and disturbance to habitat during construction
Riparian Habitat	• Loss of riparian and instream vegetation within construction domain • Loss of fuelwood, medicinal and herbal plants, building material and raw products for handicrafts within construction domain
Water use	With the building of Smithfield Dam, the people in the traditional areas may not be able to access the watercourse for subsistence purposes during the construction phase
Wetlands	• Various wetlands are affected by the project, where some wetlands will be inundated by the Smithfield Dam and other wetlands are traversed by infrastructure access roads, gauging weir, power line and road deviations) • Impacts to wetland characteristics
Estuary	Impacts to the uMkhomazi Estuary in terms of flow alterations, sediment regime, habitat alteration, water quality and overall ecosystem health
Terrestrial Ecology	• Impacts to sensitive terrestrial ecological features • Potential loss of significant flora and fauna species (e.g. Pennington's Protea Butterfly) • Damage/clearance of habitat of conservation importance • Proliferation of exotic vegetation • Loss of medicinal plants
Social Environment	• Loss of land within construction domain • Risk to livestock • Nuisance from dust and noise • Influx of people seeking employment and associated impacts (e.g. foreign workforce, cultural conflicts, squatting, demographic changes, anti-social behaviour, and incidence of HIV/AIDS) • Land claims • Safety and security • Relocation of access roads • Use of local road network • Impact to visual quality and sense of place • Light pollution
Agriculture	• Impacts to subsistence farming undertaken within the construction domain • Loss of grazing land within construction domain • Loss of stock watering points within the construction domain • Loss of cultivated land within the construction domain • Loss of fertile soil through land clearance
Air Quality	• Excessive dust levels • Greenhouse gas emissions
Noise & Vibration	• Localised increases in noise during construction • Excessive vibration as a result of major construction activities
Historical and Cultural Features	• Destruction or damage of heritage resources through construction activities • Relocation of graves

Environmental Factor	Potential Issues / Impacts
Existing Structures & Infrastructure	Impoundment to affect the following (amongst others)– • Sections of R617 road • High-voltage Eskom power lines • Access dirt roads to traditional areas • Telephone lines • Homesteads (with associated kraals and other structures)
Transportation	• Increase in traffic on the local road networks • Re-alignment of R617 and access roads
Solid Waste	• Waste generated from site preparations (e.g. plant material) • Domestic waste • Surplus and used building material • Hazardous waste (e.g. chemicals, oils, soil contaminated by spillages, diesel rags) • Wastewater (sanitation facilities, washing of plant, operations at the batching plant, etc.) • Disposal of excess spoil material (soil and rock) generated as part of the bulk earthworks
Aesthetics	• Visual quality and sense of place to be adversely affected by construction activities • Light pollution
Operation Phase	
Land Use	Servitude restrictions
Geology	Unsuitable geological conditions
Topography	• Visual impact in river valleys • Erosion of affected areas on steep slopes
Geohydrology	• Surface water and groundwater interactions
Hydrology	• Changes to seasonal flow patterns • Alteration of flow regimes • Quantity of water releases
Water Quality	• Impact on sediment balance in uMkhomazi Rivers • Quality of water releases • Impacts on water quality due to the physical, chemical and biological processes, sediments and nutrients being trapped in the dam basins and algal growth • Possible temperature and dissolved oxygen stratification could also take place, which could impact the downstream water quality, depending on the time and manner of release • With the filling of the reservoir, the decomposition of submerged vegetation and soils can deplete the level of oxygen in the water
Aquatic Ecology	• Damming of a free-flowing river (uMkhomazi River) • Alteration of current biophysical functioning of affected watercourses • Loss of aquatic habitat and change to community composition • Growth and spread of algae and other aquatic weeds • Interruptions to river continuum • Impacts on migration of aquatic biota
Riparian Habitat	• Loss of riparian and instream vegetation • Loss of fuelwood, medicinal and herbal plants, building material and raw products for handicrafts
Water use	• With the damming of the uMkhomazi Rivers, the downstream water user requirements need to be safeguarded • With the building of Smithfield Dam, the people in the traditional areas may not be able to access the watercourse for subsistence purposes
Wetlands	• Various wetlands are affected by the project, where some wetlands will be inundated by the Smithfield Dam and other wetlands are traversed by infrastructure (access roads, gauging weir, power line and road deviations) • Impacts to wetland characteristics
Estuary	Impacts to the uMkhomazi Estuary in terms of flow alterations, sediment regime, habitat alteration, water quality and overall ecosystem health
Coastal Environment	Impact of Smithfield Dam on the coastal sediment budget
Terrestrial Ecology	• Impacts to sensitive terrestrial ecological features • Potential loss of significant flora and fauna species • Proliferation of exotic vegetation • Loss of medicinal plants
Social Environment	• Land claims

Environmental Factor	Potential Issues / Impacts
	• Use of local road network for operation and maintenance purposes • Impact on visual quality and sense of place • Light pollution • Dependence of the local community on the reach of the uMkhomazi River that will be inundated
Agriculture	• Damming of a section of the uMkhomazi River will impact subsistence farming undertaken within the Full Supply Level (FSL) on traditional and state-owned land. The loss of this grazing land could place additional pressure on the remaining grazing resources • Loss of stock watering points along the affected reaches of the uMkhomazi and Luhane Rivers. If the dam is fenced off, alternative watering points would need to be established for livestock
Noise & Vibration	Noise from hydropower plant
Transportation	Re-alignment of R617 and access roads
Aesthetics	Visual quality and sense of place could be adversely affected

12 SENSITIVE ENVIRONMENTAL FEATURES

This section highlights the key sensitive environmental features that were identified in the EIA. This is presented at a high level, as the site sensitivity will be verified through the pre-construction survey and site-specific plans compiled in accordance with the conditions of the EA issued by DFFE, which encompass the entire footprint of the Smithfield Dam and its associated infrastructure.

Within the context of the Project area, the following sensitive environmental features are noted for which mitigation measures are included in the EMPr and Closure Plan (refer to sensitivity map contained in **Figure 5** below):

- The EIA assessed the overall project impacts on various Species of Conservation Concern (SCC). These SCC include the following, amongst others:
  - Stands of *Protea caffra* are regarded as an important habitat for *Capys penningtoni* (Pennington's Protea Butterfly), which is a threatened butterfly species.
  - *Gnomeskelus fluvialis* (Riverine keeled millipede) was not observed during the EIA's Invertebrate Assessment. However, its absence could not be ruled out since it was known to occur in the area based on historical records (c. 1959), and potential suitable habitat was present along the uMkhomazi River.
  - Nest sites of *Hirundo atrocaerulea* (Blue Swallows), which is a critically endangered species, are situated within the Impendle Nature Reserve. This nature reserve lies north of Smithfield Dam and is not directly affected by the project footprint. All project components will be situated beyond the 1.5 km buffer zone from Blue Swallow breeding habitat at Impendle Nature Reserve.
- The project area includes steep slopes, and construction activities in these areas will require measures to prevent erosion. Steep areas include –
  - Left- and right flank at dam wall and saddle dam (Smithfield Dam);
  - Gullies along the R617 deviation route and access roads; and
  - Spoil sites.

- All watercourses, including the uMkhomazi River and its tributaries (including drainage lines), are considered sensitive and require suitable protection from construction activities. All construction activities must comply with the National Water Act (Act No. 36 of 1998).
- All existing infrastructure and structures are regarded as sensitive and must be safeguarded from construction activities until they have been relocated and redundant sections removed (as relevant).
- All traffic and pedestrians on the public roads are regarded as sensitive and measures need to be implemented to safeguard these road users.
- The communities around Smithfield Dam need to be consulted at key project milestones. In addition, the RAP (including arrangements for resettling and compensating affected households), Resource Management Plan (RMP) (including future access to and use of the dam), Phase 2 Heritage Impact Assessment, and the search, rescue, and relocation of medicinal plants must adequately address their concerns. Existing communication channels must be respected and followed when engaging with the community, including involving the Ingonyama Trust Board, Traditional Authorities, the Department of Cooperative Governance and Traditional Affairs (COGTA), the Department of Land Reform and Rural Development (DLRRD), uMgungundlovu DM (including the Impendle LM), Harry Gwala DM (including the Dr Nkosazana Dlamini Zuma LM), and local councillors.
- The RAP must make suitable provision to relocate any dwellings and structures affected by the realignment of affected infrastructure (such as the R617), including restoring affected parties' livelihoods.
- The project area includes a number of grave sites and structures older than 60 years. The final locations of all heritage and cultural features will be confirmed as part of the Phase 2 Heritage Impact Assessment, Archaeological Impact Assessment and Paleontological Impact Assessment. These features may not be disturbed without following legal protocol.
- Manage construction-related nuisance (including noise, dust, and vibration) to sensitive socio-economic receptors, including communities surrounding Smithfield Dam.
- Properties may not be accessed unless the landowner has granted consent, the land acquisition process has been concluded, or a construction servitude has been secured.
- Livestock and unauthorised access to the construction domain need to be prevented. Excavations to be adequately safeguarded.

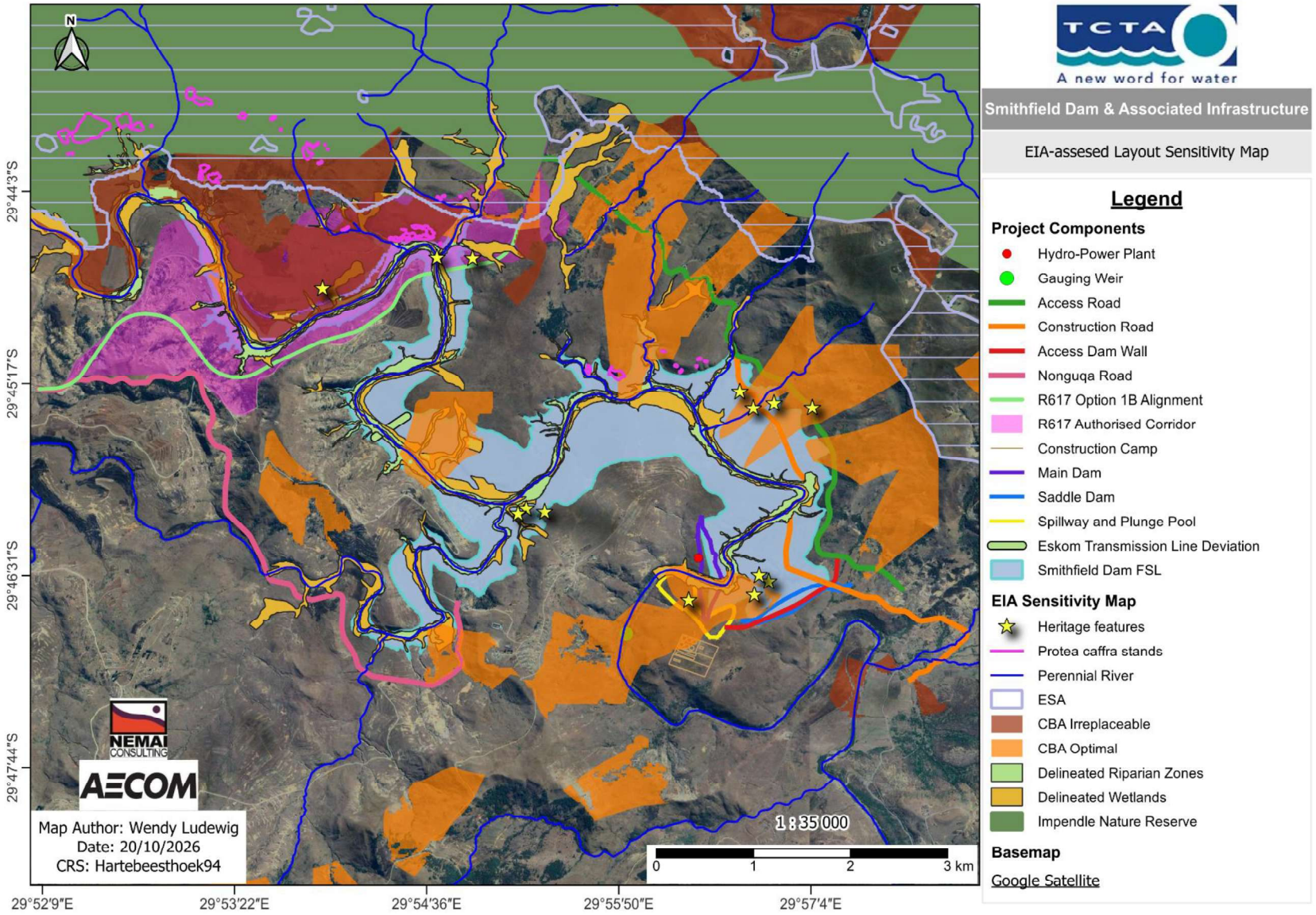

Figure 5: Sensitivity Map from the EIA Process of the Preferred Layout - uMWP-1: Raw Water Component - Smithfield Dam and Associated Infrastructure

13 ENVIRONMENTAL MANAGEMENT PLANS FOR THE PROJECT

The following principles will be considered at all times during the life-cycle of the project activities:

- The receiving environment is considered to comprise both biophysical and social components.
- Construction is a disruptive activity, and management and mitigation measures must be considered with regard to the environment, including the social environment.
- As minimum requirements, all relevant standards relating to international, national, provincial and local legislation, as applicable, will be adhered to. This includes requirements relating to waste emissions (e.g. hazardous, airborne, liquid and solid), waste disposal practices, noise regulations, road traffic ordinances, etc. Every effort should be made to minimise, reclaim and/or recycle waste material.

The framework for the subsequent management measures consists of the following:

- **Management objectives –** desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources).
- **Targets –** level of performance to accomplish management objectives.
- **Indicators –** means of measuring the progress towards the targets.
- **Management actions –** practical actions aimed at achieving management objectives and targets.
- **Responsibilities –** parties responsible for implementing the management actions.
- **Monitoring requirements –** proof of implementation of management actions.

13.1 Construction Phase

13.1.1 Site Layout, Establishment and Management

Site establishment largely entails conducting the necessary specialist studies and carrying out the requisite environmental processes in preparation for construction and may include obtaining relevant authorisations/approvals and permits, etc. Construction management entails how the site is managed for the duration of construction.

The construction site will also include land and land rights required for the development, which will be acquired through expropriation either temporarily (for the duration of construction and rehabilitation) or permanently, and barricaded off during construction. At no time during construction will construction personnel be allowed access to private land, land belonging to Traditional Authorities, or state-owned land surrounding the construction site unless a prior arrangement is made with a particular landowner and explicit permission is granted. Similarly, landowners will not be allowed access onto the construction sites.

Management Objectives:

- The layout of the construction site will be in accordance with the EA.
- Manage environmental impacts associated with site clearing and establishment.
- Ensure that only areas that are specifically required for construction purposes are cleared.
- Minimise environmental impacts associated with the construction site and related facilities.
- Ensure management of labour and staff to prevent security-related issues.
- Optimise the use of local labour and provide a work environment that is conducive to effective labour relations.
- Provide a safe and healthy working environment to labour and staff, and the public by complying with the Construction Regulations (2014) and the OHS Act (Act No. 85 of 1993).

Indicators and Targets:

Indicators	Targets
Compliance notices or other forms of sanction by the authorities	Nil
Access or encroachment into the no-go areas	Nil
Damage to sensitive environmental features outside of the demarcated construction areas, including marked and barricaded heritage resources, protected trees, watercourses, structures and infrastructure	Nil
General housekeeping as a function of visual inspections	100% compliance
General waste management, including contamination as a result of ablution facilities as a function of visual inspections	100% compliance
All temporary fencing in position and maintained until such time it is replaced by permanent fencing or removed at completion of construction activities	100% compliance
Number of health and safety major incidents	Nil
Compliance with the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014)	100% compliance
No unwarranted complaints regarding adverse impacts to existing services	100% compliance
No adverse impacts to existing services	100% compliance
All relevant approvals to be obtained prior to working within existing servitudes (including roads, railway lines, gas pipelines, power lines, telephone lines, etc.)	100% compliance

Management Actions:

Pre-construction surveys:

- An ecologist and/or group of specialists (with wetland and rehabilitation experience) to be appointed to provide input into the pre-construction survey, guidance on the implementation of the SRRP and HRRP, and to provide ongoing support.
- A Phase 2 Heritage Impact Assessment and detailed Palaeontological Impact Assessment will be undertaken by the Consultant for the areas to be affected by the construction activities. Mitigation measures will be identified to safeguard heritage and cultural features (e.g. barricading, signage, and awareness creation). These features may not be disturbed without following legal protocol.

- Baseline studies/monitoring (where required) shall be undertaken prior to construction in order to provide a benchmark against which impacts resulting from the development will be checked.
- Determine the depth of the topsoil.

Existing services and structures:

- Identify, relocate and/or demolish all affected services and structures in consultation with the owners of the services and structures.
- Conform to requirements of the relevant owners of the services and/or structures. Agreements or permits to be in place.
- Ensure access to infrastructure is available to service providers at all times.
- Immediately notify service providers of disturbance to services. Rectify disturbance to services, in consultation with service providers. Maintain a record of all disturbances and remedial actions on site.
- Damage to infrastructure shall be repaired on a timely basis, and it is to be noted that any damage to water pipes or sewer infrastructure must be considered as emergency incidents whereby correction must be immediate so as not to waste water resources and to not create environmental damage.
- Notify landowners of any disruptions to essential services.
- Determine requirements for services within inundation areas, which may include decommissioning, demolition, removal, or leaving as is.
- Existing septic tanks to be opened and filled in accordance with best practices.
- Land acquisition and compensation to adhere to the legal framework.
- Reinstatement and rehabilitation of the affected environment.

Fencing and barricading:

- The construction camp will be fenced and maintained until construction is completed, including fencing/barricading of sensitive environmental features.
- Where practical, work front areas will be barricaded with appropriate measures to prevent unauthorised access and ensure the safety of the community and animals.
- Within areas where there are livestock and/or wild animals, erected fencing will be according to appropriate specifications.
- Comply with the provisions of the Fencing Act (Act No. 31 of 1963).
- No-go areas will be clearly marked and fenced/gated accordingly.

Construction site clearing:

- Clearing of vegetation and removal of topsoil will be done in a phased manner, with due consideration of the search and rescue activities.
- Monitor the clearing activities, with particular focus on heritage resources and vegetative cover for sensitive areas, as well as protected fauna and flora species.
- Restrict site clearing activities to the construction areas as much as possible.

- Remove all the topsoil and stockpile it for the duration of construction. Stockpiles will be in suitable areas and protected against wind and water/rain erosion, contamination, pollution, and compaction of any kind.
- Topsoil to be protected from contamination from construction activities and by aggregate, cement, concrete, fuels, litter, oils, domestic and industrial waste.
- Prohibit the felling of trees for firewood.

Construction camps/offices:

The construction camp for Smithfield Dam is located to the south of the dam wall, within the purchase line. No construction accommodation will be provided at the camp, and TCTA will not construct or permit accommodation infrastructure.

- Temporary facilities and structures (fuel storage, toilets, parking areas, offices, etc.) shall be located with due cognisance of the terrain and geographical features and within the authorised footprint of the Project.
- Minimise public disturbance from lighting through suitable placement (zones), height, type, direction (inward rather than outward) and intensity of floodlights, without compromising safety.
- Provide designated safe smoking areas, with special bins for discarding cigarette butts.
- Ensure that essential services and facilities (ablution, drinking water, eating areas) are provided and maintained.
- Where water abstraction is required for construction purposes, the Contractor shall comply with the requirements of the relevant legislation.
- Water provided for domestic use must be fit for human consumption.
- A recruitment/employment office will not be permitted or established at the construction site. Furthermore, job-seekers will not be permitted access to the construction sites/offices.

Eating areas:

- Provide designated and demarcated eating areas and fully equipped kitchen and/or enclosed braai facilities for all labour and staff. Eating areas shall be cleaned daily and shall provide adequate temporary shade.
- Provide safe potable water and washing facilities. Disposal of waste shall be in accordance with the requirements below.
- Sufficient vermin/weatherproof refuse bins must be placed at all eating areas and maintained.
- The feeding, or leaving of food for animals, is strictly prohibited.

Ablution facilities:

- Provide sufficient ablution facilities for labour and staff, in accordance with the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014) and other standards.
- No pit latrines will be allowed.
- Toilets may not be situated within 100 metres (m) of any water body or within the 1:100-year flood line; exceptions should, however, be allowed when the works are in close proximity to the

water body – in this instance, mobile toilets may be situated at least 50 m away from the water body.

- All temporary/portable/mobile toilets shall be secured to the ground to prevent them from toppling over due to wind or any other cause, and doors are to be kept closed at all times.
- All windows and other ventilation openings of the toilets shall be fitted with screens to prevent flies and other unwanted flying insects from entering the neighbouring properties.
- Some form of screened-off changing facility shall be provided separately for each sex.
- The entrances to the toilets will be screened from public view.
- Sanitary hygiene bins will be provided for female staff.
- Toilet paper shall be provided.
- All ablution facilities are to be cleaned/emptied on a regular basis, before they are full and contaminate the environment, and the disposal of waste is only at a licensed waste disposal facility.

Management of workshop and equipment:

The Project workshop will be located at the construction camp, south of the dam wall.

- Maintenance and washing of construction equipment (which includes apparatus, machinery, and off-road construction vehicles) will be performed in such a manner as to avoid any environmental contamination.
- Use of drip trays, oil traps or other suitable measures.
- Washing will be at dedicated washing areas.
- Refuelling (using dripless methods/equipment) or servicing within or close proximity of the natural water resources will not be permitted.
- Workshops, refuelling depots and washing areas must be bunded and equipped with oil traps or other suitable measures.
- Ensure storage and disposal of hydrocarbons in accordance with Hazardous Substances Management.

Management of staff and labour:

- Prevent trespassing by construction workers, vehicles and equipment onto private land or land that belongs to Traditional Authorities or state-owned land surrounding the construction site.
- Use designated and demarcated smoking areas.
- Employ local people, including women, youth and persons with disabilities, as far as possible.
- Skills development of labour and staff to benefit individuals beyond completion of the Project.
- Undergo environmental awareness training.
- The establishment of a “labour and employment desk” will not be implemented, as this approach has proven unsuccessful in past projects. Instead, coordinate local labour recruitment through established and approved channels, in consultation with affected communities, Traditional Authorities, and municipal leaders, in line with the Project's socio-economic objectives. The approach will follow agreed procedures that are flexible and responsive to local preferences

and evolving project needs. Document evidence of these consultations in a format suitable for monitoring and available for compliance auditing. Employ local labour as far as possible.

- Implement a Sexually Transmitted Disease (STD) and Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) awareness and prevention programme amongst labourers. The contractor must provide a supply of free condoms to all workers. Condoms must be located in the bathrooms and other communal areas on the construction site and at the construction camps. If viable, introduce a voluntary counselling and testing programme.
- Implement a Labour Awareness Programme with a focus on social issues such as Gender Based Violence and Harassment (GBVH) and substance abuse, to promote a safe, respectful, healthy and productive working environment.
- Liaise with the South African Police Service (SAPS) and Community Policing Forums regarding safety and security issues on site, as required.
- Prevent loitering within the vicinity of the construction camp as well as construction sites.
- Communicate the limitation of opportunities created by the project through the Traditional Authorities and Ward Councillors.
- Liaise with the appropriate local authorities to ensure that they are aware of the increase in population.
- Alert local businesses to the fact that, with the arrival of construction workers, the population of the area will increase and they are likely to be faced with a higher demand and will need to prepare for this.
- A skills transfer plan must be put in place at an early stage, and workers must be given the opportunity to develop skills which they can use to secure jobs elsewhere post-construction.
- Sensitise construction workers from outside the area to the traditions and practices of local communities, including it in the induction programme.

Health and safety:

- The requirements of the OHS Act (Act No. 85 of 1993) and related regulations, including the Construction Regulations (2014), shall be adhered to, including the project-specific health and safety specification and plan.
- All labour and staff must be clearly identifiable and issued with identification cards.
- Speed limits shall be enforced on the construction sites.
- Applicable notice boards, warning signs or contact details will be put in place and secured. Night hazards will be indicated suitably (e.g. reflectors, lighting and traffic signage). Emergency contact details (including police, ambulances, emergency centres closest to the site, etc.) will be prominently displayed.
- Maintain access control to prevent access of the public to the construction areas, as far as practicable.
- Use approved communication channels to inform the community of OHS measures to prevent incidents involving community members.
- A foot and mouth disease containment policy must be developed.

Relevant Conditions/Requirements of the EA:

- In accordance with Conditions 14 and 15 of the amended EA, site-specific plans must be compiled and made available for comments from registered I&APs. Once the EA holder has incorporated the comments received, the plans must be submitted to DFFE for approval. DFFE will provide a written response within 30 days. The EMPr and Closure Plan contain the frameworks for the following plans listed in the EA:
  - Search, Rescue and Relocation Plan (SRRP) (see **Section 13.1.11** below), which should:
    - Include the rescue and relocation measures associated with the relocation of the floral species of conservation significance that cannot be accommodated within the development footprint - refer to Condition 15.3 of the EA; and
    - Be informed by the SRRP pre-construction ecological survey - refer to Condition 35 of the amended EA.
  - Habitat Rehabilitation and Restoration Plan (HRRP) (see **Section 13.1.17** below), which should, in accordance with Condition 37 of the amended EA:
    - Be developed for all construction and work sites;
    - Be informed by the available biodiversity information, baseline studies, and pre-construction survey; and
    - Be reviewed by KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA) and EKZNW prior to submission to DFFE.
  - Stormwater Management Plan (SWMP) (see **Section 13.1.6** below); and
  - Biodiversity Offset and Compensation Plan (BOCP) (see **Section 13.1.18** below).
- Condition 29 - *Written notification of commencement shall be submitted to DFFE at least fourteen days prior to the commencement of any authorised activity, including site preparation activities. The notification shall include the anticipated commencement date and the applicable EA reference number. No construction or site preparation activities may commence until this notification requirement has been fulfilled*.
- Condition 43 - *A copy of the EA, the approved EMPr, and all audit and compliance monitoring reports shall be maintained and made available for inspection and copying at the site of the authorised activity. The holder shall also make these documents available to any person upon request. Where the holder of the EA maintains a website, copies of the EA, approved EMPr, and applicable audit and compliance monitoring reports shall be made available on the publicly accessible website*.
- Condition 44 - *National, provincial and local government authorities, as well as any committees appointed in terms of the EA or any other public authority, shall not be held liable for any damages or losses incurred by the holder of the EA or any successor in title where construction activities or operations are temporarily or permanently suspended as a result of non-compliance with the conditions of the EA or any subsequent requirements arising from those conditions*.

Responsibilities:

- The Contractor will implement the Management Actions.

- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- An independent Health and Safety Agent (a service provider that will be appointed by TCTA) will monitor and audit the development against the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014).
- The ECO to check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives and to acquire the land and servitude rights for the development.

Monitoring Requirements:

- Site-specific plans approved by DFFE, in accordance with the relevant EA conditions.
- Documentation associated with the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014).
- Public complaints and issues, and responses.
- Specialist reports – pre-construction surveys and baseline studies/monitoring.
- Intact fencing and/or barricading, and no clearing outside the construction area.
- No evidence of a recruitment office at the construction site.
- All facilities in place and maintained.
- Signs erected and maintained.
- Records of awareness creation.
- Foot and mouth disease containment policy.

13.1.2 Access Control and Traffic Management

The right of access on or around surrounding private and state-owned land required to access the overall Project will be acquired through expropriation, i.e., aqueduct servitudes, road servitudes, and/or rights of way.

There will be several stages of access and access control:

- **Initial stage, prior to construction activities**:
  It is anticipated that the Project site will be accessed via existing roads for pre-construction related activities. Possible pre-construction activities include site establishment (e.g., demarcation of the construction footprint/layout, site clearance, erection of temporary fences/pegs, ablution facilities, and offices), baseline monitoring by the contractor and other pre-construction surveys.
- **During construction activities**:
  No unauthorised access will be allowed by construction workers onto private property. In the interest of public safety, members of the public will not be allowed access into active work fronts. Temporary access will be provided for road users. Temporary construction access roads will be confined to and constructed within the temporary and permanent construction

sites/footprint (refer to **Section 13.1.1** above) and will be rehabilitated as part of the overall project.

- **Final stage, operation phase**:
  - The operator (DWS) will use the new permanent access road, which will be registered as state land after the land acquisition process, as well as the existing access road on the above-mentioned state land for the overall operation of the government waterworks.
  - Should access to the uMWP-1 infrastructure be required during operation on private land or land that belongs to Traditional Authorities or state-owned land, albeit very infrequently, the operator will make specific arrangements with the parties concerned to access the servitude of the aqueduct on the private property. The operation and maintenance manual for the overall project will specify these requirements as per **Section 13.2.1**.

Management Objective:

- Prevent unlawful access to the construction site.
- Access and access control will be in accordance with the EA and the EMPr and Closure Plan.
- Ensure that only construction access roads are used during construction activities.

Indicators and Targets:

Indicators	Targets
Illegal access to private land or land that belongs to Traditional Authorities or state-owned land and use of private access roads	Nil
Adherence to requirements of the relevant road authority having jurisdiction over the affected road network.	100% compliance
Consider comments and/or recommendations by landowners/Traditional Authorities in accordance with the Promotion of Administrative Justice Act (Act No. 3 of 2000)	100% compliance
Access control measures	100% compliance
Rehabilitation of temporary construction access roads	100% compliance
No direct harm to people, livestock and wild animals due to inadequate access control	100% compliance
No harm to the public using existing public roads due to construction activities	100% compliance
Permits are to be obtained for abnormal loads	100% compliance
No speeding	100% compliance
No accidents	100% compliance

Management Actions:

- The construction sites will be barricaded off and the newly constructed access roads to and from, and around, the construction sites will be locked and/or manned (gates with security personnel, where necessary) throughout the construction period.

- At no time will the construction workers, vehicles and equipment be allowed access onto private land or land that belongs to Traditional Authorities or state-owned land or use private roads/access. All construction vehicles will use only construction access roads.
- The landowners, public or non-construction people will not be permitted access to the construction sites and roads, unless permission is given by the contractor and is undertaken in accordance with the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014). In general, visitors will not be allowed on site unless they are accompanied by the Contractor or Consultant and will undergo health and safety inductions.
- Construction labour shall be transported to and from the construction sites as far as possible to minimise traffic. Use only construction access and public roads at all times.
- Speed limits shall be enforced on the construction access roads through road signs and traffic calming measures such as flag-persons.
- Ensure minimum disruption to other road users – where construction will obstruct existing public and private roads, temporary road deviations must be provided.
- Comply with traffic rules and other requirements of the relevant road authority having jurisdiction over the affected road network.
- The contractor will establish, control and maintain access throughout the construction period.
- Maintain construction access roads during construction – repair rutting, potholes and maintain stormwater control mechanisms and access control measures above.
- Determine and document the road conditions of all existing roads to be used by the Contractor.
- When construction vehicles are required to access the R617, appropriate safety and traffic calming measures must be implemented.
- The payloads delivered by heavy vehicles need to be recorded and audited to prevent overloading of heavy vehicles.
- Abnormal load permits must be acquired for the transport of abnormal loads.
- Clearly mark pedestrian-safe access routes within the construction areas.
- The Contractor shall develop an access protocol in consultation with the relevant parties.
- The safety of the public using the existing roads must be prioritised

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Public complaints register.
- Road safety and traffic incidents register.
- Access protocol.
- Signage displayed and maintained.

- Contractor's method statement, amongst other relevant documents.

13.1.3 Air Quality Management

Dust is common during construction activities and is typically caused by earthworks and the use of gravel roads, especially in dry and windy conditions. Construction-related dust is typically more of a nuisance than a health issue, but it still requires effective management.

The use of plant, machinery and vehicles also results in atmospheric emissions from exhausts, albeit of relatively low intensity. All these emission sources must be managed effectively during development.

Management Objective:

Minimise air emissions and dust associated with the Project to ensure that it does not result in adverse human health effects and environmental damage.

Indicators and Targets:

Indicators	Targets
Compliance with applicable legislation	100% compliance
Visible vehicle emissions	Nil

Management Actions:

- Undertake baseline dust monitoring prior to the construction phase – to be undertaken by a suitably qualified specialist.
- Dust fallout monitoring shall be undertaken during the construction and rehabilitation phases by a suitably qualified specialist, in accordance with applicable legislation, recognised South African standards and industry best practice.
- Dust fallout monitoring locations shall be selected taking into consideration significant dust sources, prevailing wind direction and sensitive receptors potentially affected by construction activities.
- Appropriate dust suppression measures or temporary stabilising mechanisms are to be used when dust generation is unavoidable (e.g. dampening with water, chemical and soil binders, straw, brush packs, chipping), particularly during prolonged periods of dry weather and periods of high wind velocities. Dust suppression is to be undertaken for all bare areas, including construction areas, access roads, site yard, etc.
- All construction equipment will be kept in good working order and serviced regularly to minimise emissions.
- Speed limits must be strictly adhered to.
- Construction vehicles transporting friable or fine materials shall be suitably covered or otherwise secured to prevent wind-blown dust and material losses during transportation.

- All dust- and air-quality-related complaints shall be recorded, investigated and responded to. Where required, corrective actions shall be implemented and their effectiveness verified.
- Access/haul roads shall be maintained in a condition that minimises dust generation.
- Stockpile areas must be located away from sensitive areas where possible.
- Burning of vegetation, cleared material, waste or other construction-related materials on site should not be permitted unless authorised.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Dust Monitoring baseline and dust fallout monitoring reports in compliance with applicable legislation.
- Inspections or identification of incidents that generate dust.
- Records of dust suppression and dust-control measures implemented.
- Dust- and air-quality-related complaints recorded and tracked through the project complaints register.
- Compliance monitoring of vehicle speed limits on unsurfaced roads.

13.1.4 Noise and Vibration Management

Noise and vibrations can be generated from a variety of activities across the construction site. The remote nature of the construction domain must be factored into noise and vibration mitigation.

Noise and vibration can cause nuisance or disturbance, so actions are needed to control or minimise disturbance to surrounding communities and construction workers.

Management Objective:

Minimise noise-related and vibration disturbance to surrounding residents and communities.

Indicators and Targets:

Indicators	Targets
1-hour L_{Aeq} noise levels at selected key receptors	Threshold levels determined from baseline monitoring, including the relevant South African National Standards
Number of complaints related to noise and vibration	<10/month

Management Actions:

- Undertake baseline noise monitoring prior to construction – to be undertaken by a suitably qualified specialist.
- Before blasting or other vibration-generating activities commence, a pre-construction condition survey shall be undertaken for buildings, dwellings and other structures identified as potentially susceptible to blasting- or construction-related vibration impacts in accordance with applicable legislation. The survey shall include dated photographic records and a written description of the existing condition, including visible cracks and defects, and shall be retained as part of the Project's baseline records. The extent of the survey shall be determined with reference to the blasting design, anticipated vibration influence area, proximity of structures and applicable specialist recommendations.
- Construction equipment must be kept in good working order and operated within specifications and capacity – no overloading or speeding. Pay immediate attention to defective silencers, slipping fan belts, worn bearings, and other noise sources.
- Notice will be provided to affected landowners, occupiers, communities and other identified stakeholders prior to planned blasting activities in accordance with applicable legislation.
- No amplified music is to be allowed from the use of radios, tape recorders, compact disc players, television sets, etc.
- Transporting of equipment and material to take place during daytime periods, where possible.
- Employ industry-standard methods to control the impact of blasting and limit the risk of damage to buildings and structures by reducing blast vibrations induced in the rock mass, eliminating fly rock and limiting air-blast and noise to acceptable levels.
- Blast mats may be used wherever fly rock can result in damage to any infrastructure or where it could result in death or injury of animals, or where damage could be caused to sensitive environmental features.
- All explosives shall be transported, stored and handled in accordance with applicable laws and good engineering and construction practices.
- Additional monitoring and investigations must be undertaken, if required, when a valid complaint is registered.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the Contractor.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Specialist baseline and regular monitoring reports.

- Pre-construction condition survey for buildings, dwellings and other structures identified as potentially susceptible to blasting- or construction-related vibration impacts.
- Public complaints and issues, and responses.

13.1.5 Water Management

Working in close proximity to, or in, surface water means discharges of wastewater or releases of contaminated stormwater pose a risk to the ecological integrity of these resources, potentially to the detriment of water users. Therefore, activities that could negatively impact water resources and water users must be effectively managed and controlled to minimise or prevent these impacts. In addition, stormwater runoff should not cause erosion in and around the construction area, and it should not be contaminated by oil or other hazardous material spills.

Management Objective:

The current quality of surface water resources, including the physical and chemical quality as well as the biological characteristics of the water, the quantitative flow regime, and the quality of instream and riparian habitats, is not adversely affected by construction activities. All construction activities shall comply with the National Water Act (Act No. 36 of 1998) and the latest South African water quality guidelines.

Indicators and Targets:

Indicators	Targets
Dewatering of sediment-laden water into natural water resources	Nil
Water quality of natural water resources	100% compliance with Water Use License conditions
Presence of parameters that are toxic to aquatic life by the project	Nil
Visible oil and grease contamination	No oil and grease contamination in the river
Visible evidence of erosion caused by wastewater or stormwater practices	Nil
Impact to the EWR for the uMkhomazi River and Estuary	Nil

Management Actions:

Waste/contaminated water management:

- Identify sources of process wastewater and general quality characteristics and specify what will be done to treat and/or dispose of such water.
- Silt-laden water shall not be directly discharged over land or directly into watercourses. It shall be contained or filtered (e.g. geotextile sock) before release.

- Install sediment control measures to prevent erosion in areas that are susceptible to erosion, such as embankments, excavations, roads and stockpiles. Suitable methods will include sandbags, coarse rock (rip-rap), fabric liners, etc.
- Establish a dedicated vehicle maintenance area and wash-bay, where stormwater management measures are in place to prevent pollution.

Working in/near rivers, streams and wetlands:

- Conduct *in situ* water quality monitoring at upstream and downstream sites on the affected watercourses. As a minimum, the Contractor must monitor pH, total dissolved solids, electrical conductivity, temperature and dissolved oxygen.
- Ensure that measures are in place to prevent contamination of natural water resources.
- No impediment to natural water resources other than the planned erosion control measures, and river and wetland crossings linked to the project layout shall be permitted. The designs and/or construction methods for these crossings will be carried out only after approval by the Consultant.
- No hindrance to flow in natural drainage lines.
- Construction activities not to interfere with downstream water users.
- Access roads that cross watercourses must be limited to single roads only, and the use of multiple access roads shall be avoided.
- Provide pipe crossings for haul trucks over drainage lines.
- Cofferdams and other temporary in-stream works shall be constructed, operated and removed in accordance with the applicable Water Use Licence conditions and an approved method statement.
- Maintain downstream flows during the construction, operation and removal of cofferdams and other temporary in-stream works.
- Implement sediment and turbidity control measures to prevent silt-laden or contaminated water from entering the receiving watercourse.
- Undertake water quality monitoring at upstream and downstream locations during cofferdam construction, operation and removal.
- Rehabilitate areas affected by cofferdams and other temporary in-stream works following removal of the structures that do not form part of the permanent footprint.

Stormwater management and prevention of contamination:

- Construction areas (e.g. material laydown areas), topsoil and subsoil must be protected from contamination or pollution. Do not stockpile in drainage lines or areas where it will impede surface water runoff.
- All sensitive material storage areas shall be designed to reduce the risk of spillages and contain any spills should they occur.
- Contaminated stormwater and other run-off from the construction activities/sites shall be contained.

- In the event of a spill which may contaminate stormwater, the spill management procedures shall be implemented immediately.
- Stormwater drainage lines shall be constructed to divert run-off around construction sites to prevent contamination of the water and collection of water in excavations.
- All stormwater drainage lines shall contain water flow discharge dissipaters to prevent erosive action on the sides of the drainage lines.
- Damage to existing drainage lines, levees, and dams shall not be permitted, and where this cannot be avoided, due care will be taken during construction and measures as per the HRRP will be implemented.
- Alteration or modification of any watercourse shall be in accordance with the Water Use Licence from DWS.

Groundwater Management:

- Undertake baseline groundwater monitoring from existing boreholes in the vicinity of the Project area.
- If groundwater issues arise during construction, the team will develop appropriate mitigation measures in consultation with a hydrogeologist.
- Implement mitigation measures identified from geotechnical investigations during the project design phase.
- Convey and discharge excessive seepage water in a controlled manner.

Water conservation:

- Include observations of unnecessary or wasteful water use during site inspections, e.g. leaking taps, hosepipes, etc. Repair identified leaks and address water wastage.
- No water may be abstracted from natural water resources without authorisation from DWS. Water for construction purposes will be sourced directly from on-site watercourses, and groundwater (boreholes) will also be utilised. Water tankers will also supply water to the site.
- Avoid over-wetting, saturation and unnecessary run-off during dust control activities and irrigation.

Water Use:

- Taps supplying water for domestic use must be clearly distinguished/marked from taps supplying water not fit for human consumption.

Relevant Conditions/Requirements of the EA:

Requirements of the EA:

- Condition 40 – *Construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of stormwater runoff*.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Water monitoring – discharges.
- Construction method statements.
- Public complaints and issues, and responses.

13.1.6 Stormwater Management Plan Framework

In accordance with Conditions 14 and 15 of the amended EA, the EMPr and Closure Plan includes a framework for the preparation of a SWMP. The purpose of this framework is not to replace the detailed SWMP required by the EA, but rather to establish the minimum requirements, management objectives, implementation principles, monitoring requirements and reporting obligations that must be incorporated into the detailed SWMP. The detailed SWMP will be prepared by the Contractor and be informed by detailed design information, hydrological assessments, floodline information, pre-construction surveys, environmental sensitivities, specialist studies and the final approved layout. The SWMP must be submitted to DFFE for approval prior to commencement of the relevant construction activities.

The SWMP shall establish the stormwater management requirements for all temporary and permanent project infrastructure and shall ensure that stormwater runoff is managed in a manner that prevents pollution, erosion, sedimentation, flooding and damage to watercourses, wetlands, downstream users, infrastructure and other sensitive environmental features. The SWMP shall address both the construction and operational phases of the Project and shall be aligned with the approved EMPr and Closure Plan, EA, Water Use Licence and other applicable legal requirements.

Management Objectives:

- Prevent stormwater-related erosion, sedimentation, pollution and environmental degradation.
- Maintain natural drainage patterns and flow paths as far as reasonably practicable.
- Protect rivers, wetlands, drainage lines, riparian habitat and downstream water users.
- Ensure the effective separation and management of clean and dirty water systems.
- Minimise stormwater-related impacts associated with construction activities and permanent infrastructure.
- Promote progressive rehabilitation and stabilisation of disturbed areas.

- Ensure stormwater infrastructure is maintained and remains effective throughout the life of the Project.
- Provide contingency measures for major storm events and stormwater-related emergencies in compliance with relevant legislation.
- Ensure compliance with the EA, EMPr and Closure Plan, Water Use Licence and applicable legislation.

Indicators and Targets:

Indicator	Target
Compliance with approved SWMP	100% compliance
Installation of required stormwater controls prior to disturbance	100% compliance
Uncontrolled discharge of sediment-laden stormwater to watercourses	Nil
Pollution incidents associated with stormwater runoff	Nil
Significant erosion caused by stormwater runoff	Nil
Damage to wetlands, drainage lines or watercourses caused by stormwater activities	Nil
Rehabilitation and stabilisation of disturbed areas	100% compliance
Routine inspection and maintenance of stormwater controls	100% compliance

Management Actions:

Condition 40 of the EA requires that construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows and that drainage measures must promote the dissipation of stormwater runoff. The SWMP must specifically demonstrate how this requirement will be achieved.

The SWMP shall, as a minimum, make provision for the following (as applicable):

- Baseline Assessments and Planning -
  - Catchment and sub-catchment descriptions.
  - Existing drainage patterns and flow paths.
  - Hydrological and floodline information.
  - Identification and mapping of rivers, wetlands, drainage lines and other watercourses.
  - Identification of sensitive environmental receptors.
  - Identification and mapping of erosion-prone areas and unstable slopes.
  - Identification of existing infrastructure constraints and drainage structures.
  - Stormwater risk assessment informed by detailed design information and pre-construction surveys.
- Stormwater Design Requirements -
  - Clean-water and dirty-water separation principles.
  - Stormwater design criteria and assumptions.

  - Erosion prevention measures.
  - Sediment control measures.
  - Peak-flow attenuation measures, where required.
  - Velocity control and energy dissipation requirements.
  - Watercourse and wetland protection measures.
  - Pollution prevention measures.
  - Progressive rehabilitation and stabilisation requirements.
  - Inspection and maintenance access requirements.
- Construction Phase Requirements for -
  - Construction camps and site offices.
  - Laydown and material storage areas.
  - Access roads and haul roads.
  - Stockpiles and topsoil storage areas.
  - Spoil disposal areas.
  - Excavations and cut-and-fill areas.
  - Concrete batching and concrete washout areas.
  - Fuel storage and hazardous material storage areas.
  - Temporary drainage diversions.
  - Temporary river diversion works.
  - Dewatering activities.
  - Temporary stormwater control infrastructure.
- Erosion and Sediment Control -
  - Erosion risk mapping.
  - Identification of sediment sources.
  - Erosion and sediment control measures.
  - Sediment control hierarchy.
  - Site stabilisation measures.
  - Inspection frequencies.
  - Trigger levels for corrective action.
  - Maintenance requirements for erosion and sediment control structures.
- Stormwater Infrastructure (where applicable) -
  - Diversion berms.
  - Cut-off drains.
  - Stormwater channels.
  - Swales.
  - Check dams.
  - Energy dissipators.
  - Sediment traps.
  - Silt fences.
  - Attenuation structures.
  - Rock armouring and erosion-control protection.
  - Temporary and permanent drainage systems.

- Water Quality Protection -
  - Pollution prevention.
  - Hydrocarbon management.
  - Concrete wash-water management.
  - Contaminated runoff management.
  - Wastewater management.
  - Spill-response integration.
  - Protection of receiving water resources.
- Operation Phase Requirements -
  - Permanent stormwater infrastructure requirements.
  - Stormwater management associated with dam infrastructure.
  - Inspection and maintenance procedures.
  - Erosion monitoring requirements.
  - Sediment removal requirements.
  - Long-term stormwater management responsibilities.
  - Adaptive management requirements where deficiencies are identified.
- Emergency Management -
  - Major storm events.
  - Flooding incidents.
  - Infrastructure failure.
  - Emergency inspections.
  - Emergency repairs.
  - Stormwater-related pollution incidents.
  - Corrective and adaptive management measures.
- Deliverables -
  - Stormwater layout plans and drawings.
  - Catchment and drainage plans.
  - Floodline mapping.
  - Inspection checklists and forms.
  - Maintenance schedules.
  - Emergency response procedures.
  - Erosion and sediment control plans.
  - Water quality monitoring requirements.
  - Monitoring and reporting templates.

Responsibilities:

- The Contractor will prepare, implement and monitor stormwater controls against the SWMP.
- The Consultant will review and approve the SWMP as well as monitor and inspect the Management Actions, including the SWMP, by the Contractor.
- The ECO will independently monitor compliance with the approved SWMP, EA and the EMPr and Closure Plan.

- TCTA will remain accountable for ensuring that the SWMP is prepared, approved and implemented.
- DWS will be responsible for implementation of operational stormwater management requirements following handover of the infrastructure.

Monitoring Requirements:

The SWMP shall include monitoring requirements for:

- Stormwater infrastructure performance.
- Erosion and sediment control measures.
- Water quality protection measures.
- Rehabilitation and stabilisation of disturbed areas.
- Stormwater-related incidents and complaints.
- Corrective and adaptive management actions.
- Inspection and maintenance programmes.
- Compliance with the approved SWMP, EA and EMPr and Closure Plan.

13.1.7 Fire Management

Uncontrollable fires pose risks to health, safety and the environment. Therefore, suitable fire management measures and necessary precautions must be in place.

Management Objective:

No damage to adjacent communal land under Traditional Authorities or state-owned land, or sensitive environmental features as a result of uncontrolled fires. If uncontrolled fires start inadvertently, they are quickly brought under control.

Indicators and Targets:

Indicator	Target
Number of fires on the construction site for the duration of the development	Nil
Maximum extent of fires started inadvertently	<1 hectare
Value of adjacent property damage	Nil
Number of fire-related injuries	Nil
Loss of sensitive environmental features as a result of fires started inadvertently	Nil

Management Actions:

- Membership of the local fire protection association (if applicable) and compliance with the regulations of the association (e.g. burning of fire breaks).
- Proper emergency response procedure to be in place for dealing with fires.
- Take all necessary precautions, i.e. suitable fire-fighting equipment, in accordance with the OHS Act (Act No. 85 of 1993) and Construction Regulations (2014). A qualified investigator

must routinely inspect all fire control mechanisms for efficacy and have them approved by the local fire services.
- Comply with regulation 29 of the Construction Regulations (2014).
- Open and uncontrolled fires shall not be permitted.
- Burning of waste is not permitted
- Dedicated smoking areas to be provided with the necessary receptacles for disposing of cigarette butts.
- Smoking will not be permitted in areas with fire hazard. Such areas include workshops, fuel storage areas, and any areas where vegetation or other material could support the rapid spread of an initial flame.
- Take immediate steps to extinguish any fire, which may break out on the construction site, and/or report it to the relevant authority.
- All staff on site will be made aware of general fire prevention and control methods, and the name of the responsible person to alert in the presence of fire.
- Firebreaks to be made for construction areas as required.
- Comply with the requirements under Hazardous Substances Management.
- Comply with the National Veld and Forest Fire Act (Act No. 101 of 1998).

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the Contractor.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Membership of, and compliance with, the local fire protection association (if applicable).
- Public complaints and issues, and responses.

13.1.8 Waste Management

The general solid and liquid waste materials generated during construction must be segregated, stored, transported and ultimately safely disposed of. Efforts must be made to minimise the volumes of waste generated, and to minimise the volumes of waste to be disposed of.

Management Objective:

- Minimise environmental impacts associated with waste.
- Apply an integrated waste management approach and waste management principles of prevent, minimise, recycle or re-use, with disposal as a last option

Indicators and Targets:

Indicator	Target
Littering on the construction site	Nil
Records of waste disposed at waste disposal facilities, recycled or reused	100% records and valid waste disposal certificates, reused or recycled
Waste containers that are easily accessible and maintained	100% compliance
Removal and cleaning of waste bins	Weekly/monthly (as required)

Management Actions:

- Waste management activities must comply with the National Environmental Management: Waste Act (Act No. 59 of 2008).
- The storage of general and hazardous waste in a waste storage facility must comply with the norms and standards in GN No. R.926 of 29 November 2013.
- All waste will be collected and disposed of at appropriate disposal sites/facilities, based on the waste type (general versus hazardous). In general, burying, dumping or burning of waste materials will not be permitted. Note that provision is made for the burying of inert material below the full supply line of the Smithfield Dam Reservoir and above the minimum drawdown level.
- Ensure that waste is transported in a manner that prevents spills en route.
- Vermin/weatherproof bins (kept closed) and/or skips will be provided in sufficient numbers and capacity to store general/domestic and construction waste, respectively. The bins and skips should be emptied to avoid overfilling, spillage, and other associated nuisances.
- Waste must be separated at source (e.g. glass, paper, metals, plastics, organic waste and hazardous waste) and have a dedicated storage area. Allow collection by recycling contractors and/or the community, where feasible.
- The maximum retention time for temporary storage of waste generated must not exceed a month, provided the waste does not present a health hazard or odour build-up.
- Littering is prohibited.
- Excess concrete, building rubble or other material must be disposed of in areas designated specifically for this purpose and not indiscriminately over the construction site.
- Contaminated soil must be treated and disposed of at a permitted waste disposal site or be removed and the area rehabilitated immediately.
- All chemical spills must be contained and cleaned up by the supplier or professional pollution control personnel.
- Run-off from wash bays must be intercepted.
- Hazardous and flammable substances such as used oil and contaminated hydrocarbons must be stored separately and dealt with in accordance with Hazardous Substances Management.
- Establish and monitor recycling targets, where feasible.

Relevant Conditions/Requirements of the EA:

Requirements of the EA:

- Condition 42 - *An integrated waste management approach shall be implemented throughout all phases of the project. Waste management measures shall be based on the principles of waste minimisation and shall incorporate, where appropriate, waste reduction, reuse, recycling, recovery and responsible disposal. All waste generated by the project shall be managed in accordance with applicable legislative requirements, and any solid waste requiring disposal shall be disposed of at a landfill facility licensed in terms of Section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)*.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the Contractor.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Public complaints and issues, and responses.
- Housekeeping activities.
- Records of recycling, reuse or disposal certificates.

13.1.9 Hazardous Substances Management

Hazardous and flammable substances pose risks to health, safety and the environment. These substances are typically limited to fuels, oils and greases, hydraulic fluids and paint. Ensure these substances are transported, stored, handled, and disposed of safely, with no risk to the environment.

However, spillages can occur as a result of accidents, negligence, or other upset circumstances. In the event of a spill, quick and effective remedial action can ensure little or no significant impact occurs, especially if there is also effective rehabilitation.

Management Objective:

- Hazardous and flammable substances are stored, transported, used and disposed of in accordance with safe practice and regulatory requirements.
- Spillages of hazardous and flammable substances are prevented, and should they occur accidentally or for any other reason, rapid clean-up is implemented to prevent water, soil and/or groundwater contamination.

Indicators and Targets:

Indicators	Targets
Fires as a result of poor management of hazardous substances	Nil
Health complaints or injuries as a result of poor management of hazardous substances	Nil
Audits on safe handling, storage, transport, use and disposal	100% compliance compliance
Complaints in respect of poor management of hazardous substances	Nil
Major spillages are cleaned and hazardous substances disposed of in accordance with the legal requirements	Within 24 hours
Complaints related to spillage of hazardous materials	Nil

Management Actions:

- Comply with the Hazardous Substances Act (Act No. 15 of 1973), and the OHS Act (Act No. 85 of 1993), relevant associated regulations and applicable SANS and international standards, and this includes *inter alia*:
  - Emergency preparedness and response, and emergency equipment.
  - Fire prevention and protection (Regulation 29 of the Construction Regulations, 2014).
  - Electrical Installations (Regulation 24 of the Construction Regulations, 2014).
  - Use and storage of flammables (Regulation 25 of the Construction Regulations, 2014).
  - Hazardous Chemical Substances.
  - Incident reporting and investigation.
  - Blasting and the use of explosives.
- Compliance with NEMA and the National Water Act (Act No. 36 of 1998).
- Ensure that labour and staff who use hazardous and flammable substances are appropriately trained and wear Personal Protective Equipment (PPE).
- Obtain MSDSs for all hazardous chemical formulations before use, and the substances must be handled according to the instructions.
- Record the details and quantities of hazardous and flammable substances on the construction site.
- Implement systems and measures that prevent uncontrolled or accidental releases/spills into the environment. If a spill occurs, clean it up immediately using absorbent spill clean-up materials or suitable materials/equipment, and remedy the cause. Furthermore, spill recovery should be treated as hazardous waste.
- Flammable substances will be handled, stored, used and transported in a safe manner that does not result in a fire or explosion.
- Use clear signage – no smoking and other precautions.
- Ensure secure and clear labelling on containers with the details of the hazardous and flammable contents.
- Where flammable liquids are being used, applied or stored, the workplace must be effectively ventilated.

- All storage tanks containing hazardous materials must be placed in a containment area with impermeable surfaces and must be capable of containing 110% of the volume of the hazardous material.
- Provide secondary containment where a risk of spillages exists.
- Hazardous materials will be disposed of at registered sites or handed to registered hazardous waste disposal facilities for disposal/recycling.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- An independent Health and Safety Agent will monitor and audit the development against the OHS Act (Act No. 85 of 1993) and the Construction Regulations (2014).
- The ECO to check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Documentation required in terms of legal requirements, including the Hazardous Substances Act (Act No. 15 of 1973), OHS Act (Act No. 85 of 1993), and relevant regulations.
- Public complaints and issues, and responses.
- Disposal certificates.
- Recorded evidence of spillages.

13.1.10 Fauna and Flora Management

Sensitive environmental features (including terrestrial and aquatic ecosystems as well as SCC that were identified during EIA) in relation to the Project are discussed in **Section 12** above. These features need to be safeguarded, rescued, or relocated.

A site-specific SRRP and HRRP will be developed for the Project and submitted to DFFE to comply with Conditions 14, 15, 35 and 37 of the amended EA. The frameworks for these Plans are outlined in **Section 13.1.11** and **Section 13.1.17**, respectively.

Management Objectives:

- Identify, relocate and reinstate flora and fauna species in accordance with the SRRP and HRRP.
- Prevent harm to faunal species by preventing access during construction and relocating to a safe environment (if encountered).
- Ensure the protection of all animals, including livestock.
- Ensure the protection of medicinal plants.

Indicators and Targets:

Indicator	Target
Documentation available for all pre-construction surveys, from pre-construction to clearing	100% compliance
Percentage of area searched and rescued in the construction areas, including licences/permits (where required)	100% compliance (conservation-worthy fauna and flora identified and removed prior to pre-construction clearing)
Alien invasive vegetation control in the construction areas	100% compliance
Destruction and/or removal/harvesting of medicinal plants	Nil

Management Actions:

Translocation and protection of flora:

- Suitably qualified biodiversity specialists to identify, locate, mark (for protection during pre-construction and construction) and/or remove/relocate protected plants prior to pre-construction site clearing.
- Acquire licences from DFFE in terms of the National Forests Act (Act No. 84 of 1998) if protected trees are to be cut, disturbed, damaged, destroyed or removed.
- Acquire permits from EKZNW in terms of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) and applicable provincial conservation legislation for the removal and transportation of endangered fauna and flora if avoidance is not possible.
- Protect *Protea caffra* stands surrounding Smithfield Dam, which serves as suitable host plant habitat for Pennington's Protea Butterfly.
- Any protected plants or trees in proximity to or within the construction areas that will remain must be clearly marked and must not be disturbed, defaced, destroyed or removed, unless permitted and otherwise specified by the Consultant.
- Photographs of protected and sensitive flora species must be displayed at the construction camp to heighten awareness.

Control of weeds and alien invasive plants:

- The identification and control of invasive and other noxious plants must be undertaken according to the Alien and Invasive Species Regulations (2020) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004).
- With the disturbance of soils, weed growth is expected and should be controlled before seed formation.
- Ensure that the control of exotic or invasive plants is undertaken by qualified contractors using appropriate methods such as hoeing, hand pulling, digging, mowing or herbicide applications.
- The use of any pesticides or herbicides shall not have negative impacts on the surrounding environment.

- Dispose of the eradicated plant material at an approved solid waste disposal site. If no toxic sprays or persistent poisons were used during eradication, then woody material may be sold or donated as fuel, building or craft material.
- A compensation ratio of 1:3 must be applied for every conservation-worthy indigenous tree removed.

Search, relocation and protection of fauna:

- Comply with the Natal Nature Conservation Ordinance (15 of 1974) with regard to the accommodation of relevant large mammal species, if relevant.
- A suitably qualified faunal specialist shall identify animal species, populations and nests of conservation-worthy species and undertake the relocation prior to the commencement of the pre-construction phase.
- No wild animals may under any circumstances be fed, hunted, poached, snared, captured, injured or killed (unless posing a direct threat to labour and staff). This includes animals perceived to be vermin.
- Undertake regular inspections of the surrounding natural vegetation, excavations, fences/barricades and along game paths to ensure that there are no trapped animals or traps/snares. Remove and dispose of any snares or traps, and safely remove and release any animals. Any animal found dead or injured as a result of traps or snares on site must be reported to the SPCA and EKZNW.
- Only existing roads must be used for all vehicles. There must be no driving in vegetation whatsoever.
- Ensure that domesticated and wild animals are kept out of the construction site as far as possible.
- No fishing is allowed within the construction footprint.
- Have an emergency response procedure for dealing with snake bites, as venomous species may occur in the area.
- Photographs of protected and sensitive fauna species must be displayed at the construction camp to heighten awareness.
- Educate personnel about venomous snakes, scorpions and spiders and that these species are not to be harmed. Should any such species be encountered, they are to be safely moved outside of the disturbance footprint by a suitably qualified person.

Dealing with sensitive species:

- Search, rescue and relocation for Riverine Keeled Millipede and other polydemoid taxa within proximity to the Project. Members of the scientific community and entomologists interested in Diplopoda (in particular the Natal Museum) are invited to collect material for scientific use. EKZNW must be consulted to ensure their requirements are met.
- If any SCCs are encountered on site, which may be at risk of being harmed by construction activities, then all related activities are to be halted, and a qualified specialist is to be consulted as to the best way forward.

Relevant Conditions/Requirements of the EA:

Requirements of the amended EA:

- Condition 14 – *The Environmental Management Programme (EMPr) submitted as part of the EIA is hereby approved for preparatory construction work only, however, it must be amended to incorporate the requirements for site-specific plans and that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity. The following site-specific plans must be prepared with the incorporation of a phased approach and be made available for comments by registered Interested and Affected Parties, and the holder of this environmental authorisation must consider such comments. Once amended, the final plans must be submitted to the Department for written approval prior to commencement of the activity. The Department will provide written response within a period of 30 days. These plans include inter alia:*
  - *Search, Rescue and Relocation Plan* (refer to the framework included in **Section 13.1.11**);
  - *Storm Water Management Plan* (refer to the framework included in **Section 13.1.6**);
  - *Habitat Rehabilitation and Restoration Plan* (refer to the framework included in **Section 13.1.17**).
- Condition 15.1 - The detailed final Biodiversity Offset and Compensation Plan (refer to the framework included in **Section 13.1.18**) developed in consultation with relevant stakeholders, including inter alia, EDTEA and EKZNW.
- Condition 15.3 - *A rescue and relocation plan* (refer to the framework included in **Section 13.1.11**) *for the floral species of conservation significance that cannot be accommodated within the development footprint*.
- Condition 33 – *The detailed Biodiversity Offset and Compensation Plan* (refer to the framework included in **Section 13.1.18**) *must be developed in consultation with relevant stakeholders including inter alia, EDTEA and EKZNW and must be approved by this Department prior to construction commencing on any part or aspect of the development. The Department will provide written response within a period of 30 days*.
- Condition 35 – *A pre-construction survey of the final development footprint must be undertaken to ascertain the identity and the exact number of individual protected species affected by the proposed development prior to the commencement of construction. The pre-construction survey must be used to inform the plant search, rescue and relocation plan. The timing of the implementation of the plant rescue and relocation within the development footprints must be aligned with the construction programme and as far as it is practically possible incorporating a phased approach and allow for multiple season plant rescue and relocation*.
- Condition 36 – *Prior to removal, relocation or destruction of any protected or endangered plant and animal species that cannot be accommodated within the development footprint, all relevant*

permits must be obtained from the relevant competent authority. Copies of the permits must also be submitted to the Department for record keeping.

- Condition 37 – *A comprehensive habitat rehabilitation and restoration plan must be developed for all construction and work sites and must be submitted to the Department for approval. This Plan must be informed by the available biodiversity information, baseline studies, and pre-construction surveys. The plan must be reviewed by EDTEA and EKZNW prior to submission to the Department. The Department will provide a written response within a period of 30 days*.

Responsibilities:

- The Contractor will implement the Management Actions.
- Specialists to compile site-specific plans.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Public complaints and issues, and responses.
- Exotic or invasive plants – growth/re-growth.
- Records of flora and fauna search and relocation and/or protection.
- Specialist reports including, amongst others, the SRRP and HRRP.
- Approval from DFFE for site-specific plans, in accordance with the EA and amended EA.
- Aquatic monitoring programme.

13.1.11 Search, Rescue and Relocation Plan Framework

In accordance with Condition 14 of the amended EA and Condition 15.3 of the EA, the EMPr and Closure Plan includes a framework for the preparation of an SRRP. The purpose of this framework is not to replace the detailed SRRP required by the EA, but rather to establish the minimum requirements, management objectives, implementation principles, monitoring requirements and reporting obligations that must be incorporated into the detailed SRRP. The detailed SRRP must be prepared by suitably qualified specialists, informed by pre-construction surveys and other specialist investigations, and submitted to the DFFE for approval prior to the commencement of the relevant construction activities

An SRRP must be prepared and approved prior to construction activities occurring within areas where protected, threatened, endangered, medicinal or other conservation-worthy fauna and flora species may be affected by the Project. The SRRP must comply with the requirements of the EA and amended EA. The SRRP must be informed by the findings of pre-construction surveys and must incorporate a phased approach aligned with the construction programme.

The purpose of the SRRP is to identify SCC that may be affected by the Project, implement avoidance, protection, search, rescue, relocation and monitoring measures, and identify residual impacts that must inform the BOCP.

Management Objectives:

- Prevent unnecessary loss of protected, threatened, endangered, medicinal and conservation-worthy fauna and flora species.
- Ensure that all protected species affected by the Project are identified prior to disturbance of the relevant construction footprint.
- Implement appropriate search, rescue, relocation, propagation and monitoring measures where avoidance is not possible.
- Ensure compliance with all permit requirements associated with protected fauna and flora.
- Provide inputs to the BOCP where rescue or relocation is not feasible or where residual impacts remain, as relevant.
- Ensure compliance with the conditions of the EA and amended EA, as well as the applicable biodiversity legislation.

Indicators and Targets:

Indicator	Target
Construction areas surveyed prior to disturbance	100% compliance
Protected species identified and recorded within affected footprints	100% compliance
Rescue and relocation completed prior to vegetation clearing or earthworks	100% compliance
Required permits obtained prior to relocation or destruction of protected species	100% compliance
Protected species affected without specialist input or approval	Nil
Flora and fauna rescue and relocation records maintained	100% compliance
Monitoring reports submitted in accordance with the approved SRRP	100% compliance

Management Actions:

SRRP Pre-construction Surveys

- Undertake SRRP pre-construction surveys prior to disturbance of any construction footprint to identify protected, threatened, endangered, medicinal fauna and flora species as well as species of conservation concern.
- Surveys must include all construction areas associated with the Project and should align with the final approved layout.
- Surveys should be undertaken during the correct seasons to maximise species detectability, and where necessary, multiple seasonal surveys should be completed.

- Survey findings must inform the final SRRP and rescue requirements for each construction phase.

Search and Rescue Requirements

The SRRP must include, as a minimum:

- Identification of protected, threatened, endangered, medicinal and conservation-worthy plant species that may be affected by the Project.
- Identification of sensitive faunal species and habitat features that may be affected by the Project.
- Species-specific rescue, handling, relocation, propagation and monitoring requirements.
- Identification of species suitable for transplantation, propagation or seed collection.
- Identification of species or habitats that require avoidance rather than relocation.
- Chance-find procedures for protected fauna and flora encountered during construction activities.
- Procedures for protection, handling and transport of rescued species.

Receptor Sites

The SRRP must:

- Identify suitable receptor sites for relocated fauna and flora.
- Justify receptor site selection based on habitat suitability and long-term sustainability.
- Confirm compatibility with existing ecological characteristics.
- Include mapping of receptor sites and associated management requirements.

Nursery Requirements

Where required, the SRRP must:

- Specify requirements for temporary holding facilities or nurseries.
- Include requirements for propagation, maintenance, irrigation and record-keeping.
- Identify responsibilities for nursery management and monitoring.

Permits and Licenses

- Obtain all permits and licenses required for the search, rescue, relocation, possession, transport, propagation or destruction of protected fauna and flora species prior to implementation.
- Copies of permits and licenses must be maintained on site and submitted to DFFE for record-keeping where required.
- Permit and licensing conditions shall be incorporated into the implementation of the SRRP.

Biodiversity Offset Integration

The SRRP shall identify:

- Species that cannot reasonably be rescued or relocated;
- Species with low anticipated survival rates;

- Residual impacts associated with rescue and relocation activities;
- Habitat losses that cannot be fully mitigated through rescue and relocation; and
- Requirements that must inform the BOCP.

Responsibilities:

- The Consultant will prepare the SRRP.
- The Contractor will implement the approved SRRP and ensure that no disturbance occurs prior to specialist clearance.
- The Consultant will review, monitor and verify compliance with the SRRP.
- The ECO will independently monitor compliance with the approved SRRP, EA and EMPr and Closure Plan.
- TCTA will be accountable for ensuring that the SRRP is prepared, approved and implemented.

Monitoring Requirements:

- Approved SRRP.
- Pre-construction survey reports.
- Flora and fauna rescue and relocation register.
- Permit and license register and copies of permits and licenses.
- Nursery records (where applicable).
- Monitoring reports.
- Specialist close-out report confirming implementation of the SRRP.
- Records of species relocated, protected, propagated or incorporated into the BOCP.

13.1.12 Heritage and Palaeontology Management

As mentioned in **Section 12** above, there are a number of grave sites and structures older than 60 years that were identified within and near the Project site as part of the Phase 1 Heritage Impact Assessment during the EIA.

The structures older than 60 years must be protected during construction or be demolished upon receipt of written authorisation following written application to KZN Amafa and Research Institute (Amafa). The graves affected by the overall project will need to be exhumed/removed from their original positions to a site agreed upon by the affected families. If any palaeontological resources are found during construction, the relevant applications must also be submitted to Amafa.

Management Objective:

To avoid damage to, or destruction of, any heritage and cultural sites, graves, palaeontological resources and archaeological artefacts.

Indicators and Targets:

Indicators	Targets
Damage to, or destruction of, archaeological and cultural resources or graves or palaeontological resources.	Nil
Compliance with permit conditions, where applicable	100% compliance

Management Actions:

- A Phase 2 Heritage Impact Assessment will confirm the location of all the graves to be removed from the dam basin or areas within the overall development footprint.
- Exhumation and reburial must be conducted in accordance with legislation, the area's cultural requirements, and in consultation with Amafa and the affected families.
- A Phase 2 Heritage Impact Assessment will confirm the location and status of all structures older than 60 years to be demolished within the dam basin or areas within the overall development footprint.
- For any chance finds, the construction activities must be stopped in the affected area (to be demarcated and protected). A registered heritage specialist shall carry out the inspection and inform the heritage resource agency (i.e. Amafa) about the finding.
- Permits must be obtained from Amafa in terms of the KZN Amafa and Research Institute Act (Act No. 05 of 2018) if heritage resources are to be impacted and for the removal thereof.
- All graves and structures older than 60 years situated within the construction areas are to be protected by a 20m buffer area (using highly visible barricading) until the relevant permits have been obtained and the exhumation/removal (graves) or demolition (structures older than 60 years) have been completed and the permit conditions have been complied with.
- All graves and structures older than 60 years situated in close proximity to the construction areas are to be protected by a 20m buffer area (using highly visible barricading).
- A detailed Palaeontological Impact Assessment will be undertaken for the areas to be affected by the construction activities. Mitigation measures will be identified to safeguard any identified fossils (as relevant).
- Permits must be obtained from Amafa in terms of the KZN Amafa and Research Institute Act (Act No. 05 of 2018) if palaeontological sites are to be impacted.
- Create awareness amongst personnel about the safeguarding of heritage resources.
- Chance Find Protocols –
    - An information section on cultural resources should be included in the Safety, Health, Environment and Quality (SHEQ) training given to contractors involved in earthmoving activities. These sections must include basic information on:
        - Informal Graves and burials;
        - Archaeological structures and material;
        - Historical structures and material; and
        - Palaeontological material.

- This module must be tailor-made to include all possible finds that could be expected in the area of construction. Possible finds include:
  - Archaeological structures and/or material, disturbed during construction-related excavation activities. This could include stone tools, pottery or grindstones and historical artefacts such as glass, metal and ceramics;
  - Informal, unidentified graves; and
  - Historical structures and material.
- In the event that a possible find is discovered during construction, all activities must be halted in the area of the discovery and a qualified archaeologist contacted. Any artefacts uncovered cannot be removed, destroyed or interfered with by anyone on the site. Contractors and workers must be aware of the penalties for unlawfully removing cultural, historical, archaeological, or palaeontological artefacts, as set out in the KZN Amafa and Research Institute Act (Act No. 05 of 2018), Section 57.
- The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.
- If mitigation is necessary, an application for a rescue permit must be lodged with Amafa.
- After mitigation, an application must be lodged with Amafa for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
- In the event that human remains are uncovered, or previously unknown graves are discovered, a qualified archaeologist and the SAPS need to be contacted and an evaluation of the finds made.
- If the remains are to be exhumed and relocated, the relocation procedures as accepted by Amafa and/or the South African Heritage Resources Agency (SAHRA) need to be followed. This includes an extensive social consultation process. Note that the relocation of known or identified graves will be handled as part of the proposed RAP for the settlements or households located within the dam basin that will be directly affected by the proposed dam.

Relevant Conditions/Requirements of the EA:

Requirements of the EA:

- Condition 41 – *Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made*.

Responsibilities:

- The Contractor will implement the Management Actions (excluding the preparation of the Phase 2 Heritage Impact Assessment and Palaeontological Impact Assessment).
- The Consultant will undertake the Phase 2 Heritage Impact Assessment and Palaeontological Impact Assessment.

- The Contractor will implement the relevant requirements of the Phase 2 Heritage Impact Assessment and Palaeontological Impact Assessment.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Permits and/or approvals and compliance thereto.
- Phase 2 Heritage Impact Assessment and Palaeontological Impact Assessment.

13.1.13 Social Management

Stakeholder management:

- The Project will affect occupants of land that falls under Traditional Authorities and state land. All I&APs will need to be (i) kept updated on the status of construction and (ii) given the opportunity to raise issues or request information.
- A stakeholder engagement process will be implemented to ensure that stakeholders and communities are kept informed about the project and its impacts, and the effective resolution of issues and grievances.
- A grievance redress mechanism will be developed and implemented, and there will be one point of contact for the lodging of complaints/grievances. The procedure to lodge a grievance will be shared with I&APs.

Socio-economic opportunities:

- The development will provide employment and various commercial opportunities, and training and skills development where possible, prioritising local communities.

Relocation Action Plan:

- A RAP must be prepared to make provision for the relocation of any dwellings and structures affected by the project and must include the restoration of livelihoods of the affected parties. The framework for the RAP is provided in **Section 13.1.14** below.

Management Objective:

- Establish and maintain good relationships with, and promote participation of, all key I&APs.
- Adhere to agreements made with Local Authorities, Traditional Authorities, individual occupants and community members regarding communication.
- Monitor and record all impacts, complaints and issues and ensure that these are timeously and effectively verified and responded to.

Indicators and Targets:

Indicators	Targets
Acknowledgement of complaints and issues	Within five (5) working days
Address and respond to complaints and issues	Within thirty (30) working days, unless additional information or clarification is required.
Log and formalise all communication received and track complaints to determine trends and issues that may require future interventions.	100% of communication received is recorded.
Deviations from agreements made with Local Authorities, Traditional Authorities, individual occupants and community members	Nil

Management Actions:

- Establish and maintain communication channels with I&APs.
- Existing communication channels need to be duly respected and adhered to when engaging with the Traditional Authorities within and surrounding the Project site.
- Continued liaison with authorities with regard to compliance with the EA and the EMPr and Closure Plan.
- Establish and maintain a protocol to record and address complaints and issues and provide a single point of contact (suitably qualified person) through whom the I&APs may register queries, issues or complaints.
- TCTA is to consult with the affected parties regarding the acquisition of the land and servitude rights and related financial loss claims, if any.

Responsibilities:

- The SM shall act as the primary point of contact for landowners, I&APs and community representatives regarding Project-related complaints, grievances and stakeholder engagement matters. The SM shall maintain the official complaints register, coordinate investigations with the Contractor and relevant specialists, and track complaints through to closure.
- The Contractor will implement the management actions.
- The Consultant will review/approve, monitor and inspect the management actions by the Contractor.
- The ECO to check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives and consultations relating to the acquisition of the land and servitude rights.

Monitoring Requirements:

- Public complaints and issues, and responses.
- Socio-economic opportunities, in line with the construction contract.

13.1.14 Relocation Action Plan Framework

A RAP must be prepared to make provision for the relocation of any dwellings and structures affected by the project and must include the restoration of livelihoods of the affected parties.

Management Objective:

To undertake a rigorous process in the implementation of the RAP for the relocation of families and ensure that people who are affected by having to be relocated are not worse off than before the project was implemented. Livelihood restoration is a critical aspect that must also be considered in this process.

Indicators and Targets:

Indicators	Targets
Acknowledgement of complaints and issues	Within five (5) working days
Address and respond to complaints and issues	Within thirty (30) working days, unless additional information or clarification is required.
All affected households and infrastructure are successfully relocated prior to impoundment, and livelihoods restored	100% compliance

Management Actions:

- Comply with applicable legal statutes and follow best practice where applicable.
- All parties affected by the project must be treated in a manner that is fair and equitable.
- Compensation values are based on the need to provide for replacement of lost assets, i.e. actual financial loss.
- Where income is adversely affected, appropriate assistance is to be provided to give the persons displaced by the project the opportunity to adjust to a new environment and living conditions.
- The process for dealing with RAP-related issues is conducted in a manner that is fair, ethical and consultative.
- The RAP must include *inter alia:*
    - Relocation areas that are compatible with the Integrated Development Plan (IDP) of the Municipality and to be supported by the Traditional Authority.
    - A comprehensive inventory of all dwellings and buildings in the project area that are affected (number of living rooms, total floor area, finishings, storage facilities, out buildings, crops and fruit trees, animals, etc.)
    - Land requirements e.g. production of maize and other food crops and provision for the loss of land when relocated.
    - Grave Relocation Plan that includes a register, procedures and processes for the exhumation and re-interment of remains.

Responsibilities:

- The Consultant will develop the RAP, which will be reviewed by TCTA.
- Relocation of Households/families to be undertaken by the Contractor in accordance with the RAP.
- Relocation of graves, subsistence farming, livestock and grazing land and small house-based businesses to be undertaken by the Consultant in accordance with the RAP.
- Relocation of existing infrastructure to be undertaken by the Contractor in accordance with the RAP.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives and consultations relating to the acquisition of the land and servitude rights.

Monitoring Requirements:

- Complaints and issues, and responses from the affected families.
- Monitoring against the RAP, once available.

13.1.15 Environmental Awareness and Training

Environmental awareness is understanding environmental management obligations and the prescriptive measures governing the development. All staff and labour should be generally attentive to sensitive environmental features and have a higher level of understanding of environmental management obligations.

The methods of creating environmental awareness and methods of training may include:

- Induction training and constant refresher training;
- Courses/presentations prior to construction activities;
- Refresher courses/presentations (as and when required);
- Toolbox talks (task- and area-specific); and
- Signage/posters containing environmental information at appropriate locations, e.g. no destroying of protected fauna, grave sites - no entry, etc.

Courses and toolbox talks must be provided by the Contractor in a language and medium understood by labour and staff.

Management Objective:

Ensure that all labour and staff on the construction site are aware of the relevant provisions of the EA and EMPr and Closure Plan, as well as their specific roles and responsibilities.

Indicators and Targets:

Indicators	Targets
Labour and staff completed/attended the appropriate environmental awareness and/or training	All and 100% aligned with the specific roles and responsibilities
Records of environmental awareness and/or training undertaken	100% compliance, kept on site

Management Actions:

- The Contractor must arrange that all of his employees, sub-contractors and temporary personnel go through the project-specific environmental awareness training courses before the commencement of construction and as and when new staff or sub-contractors are brought on site.
- The environmental training is compulsory for all employees and structured in accordance with their relevant rank, level and responsibility.
- Training may include, amongst others:
  - Water conservation – highlight simple water-saving tips such as keeping taps properly closed, fixing leaks on hosepipes and others.
  - Fauna and flora – provide training pursuant to the requirements under Fauna and Flora Management. Particular emphasis should be placed on talks regarding snakes and other sensitive fauna.
  - Spillages – ensure awareness on prevention, containment and reporting of spills that do occur.
- Photographs of sensitive fauna and flora must be displayed on the construction site to raise awareness about the specific species.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Records of training and awareness.
- Signage/photographs displayed and maintained.

13.1.16 Rehabilitation and Reinstatement Management

Rehabilitation refers to a phase of the project that will be carried out after the construction of the infrastructure, as follows:

- Clean-up and removal of construction roads, equipment and facilities around the disturbed areas as soon as practically possible. Fencing will remain intact.
- Landscaping, reinstatement of topsoil and vegetation using species and methods specified by a qualified specialist.
- Rehabilitation of existing services and decommissioning of temporary services where applicable.
- Control of exotic or invasive plants.
- Completion and acceptance of the rehabilitation per affected property, and removal of fencing (where applicable).

A site-specific HRRP will be developed for the Project and submitted to DFFE to comply with Conditions 14, 15 and 37 of the EA and amended EA. The framework for this Plan is outlined in **Section 13.1.17**.

The closure and decommissioning of temporary or redundant infrastructure, including bulk fuel storage infrastructure and any roads, bridges or associated infrastructure confirmed for removal, must be undertaken in accordance with **Section 13.1.19**.

Management Objective:

Rehabilitate all areas disturbed by construction activities to pre-construction conditions.

Indicators and Targets:

Indicators	Targets
Recovered topsoil from disturbed areas stored for re-use in areas not affected by the dam basin and development footprint	100%
Evidence of erosion	Nil
Survival rate of translocated plants	As per the requirements of the SRRP/HRRP
Vegetation cover for grass using methods recommended in the specialist reports, including the HRRP	As per the requirements of the SRRP/HRRP
Exotic or invasive plants on the construction areas	<10% of the rehabilitated area
All fuel, sludge, tanks, pipelines and dispensing infrastructure removed from the site.	100% compliance
No uncontrolled release of fuel, contaminated water or hazardous waste.	100% compliance
No visible staining, hydrocarbon odour or contaminated material remaining.	100% compliance
Contaminated land assessed and remediated where required.	100% compliance
Natural drainage reinstated and disturbed areas rehabilitated.	100% compliance
Closure accepted in writing by the ECO.	100% compliance

Management Actions:

Removal of structures and infrastructure:

- Clear and completely remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services and fixtures.
- Remove from site all temporary pollution containment structures.
- Remove from site all temporary sanitary infrastructure and wastewater disposal systems. Take care to avoid leaks, overflows and spills and dispose of any waste in the approved manner.

Management of spoil material:

- Care must be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons.
- The spoil material shall be analysed and the leachate potential determined. Depending on the findings, identify appropriate management measures to prevent pollution of groundwater and surface water.
- Ensure only inert, non-polluting materials are placed into pits within the dam's inundation area.
- No sediment-laden or contaminated runoff to reach downstream or downgradient watercourses.
- Adhere to the spoil management measures outlined in the HRRP.

Landscaping:

- All imported materials used for the construction of temporary roads must be removed and backfilled with suitable material, i.e., subsoil prior to construction.
- Backfilling of excavations must ensure placement of soil in the order it was removed, i.e. subsoil is deposited first, followed by the topsoil. Compact in suitable layer thickness to avoid subsidence or depressions.
- The landscape profile should be restored, matching as closely as possible to the original landform prior to the distribution of the topsoil. In the case of cut and fill areas, the landscaping should be rehabilitated in line with the engineering solutions.
- Ensure that there is no ponding or localised/collection of stormwater run-off that will cause soil erosion.
- Ensure that no excavated material or stockpiles of construction materials (surplus and spoil materials) are left on the rehabilitation areas. Surplus and spoil materials are to be transported to another location for re-use or spoiling, disposed of at a licensed facility, or offered to the landowners.

Topsoil replacement and soil amelioration:

- Execute topsoil placement after scarifying the areas, only after construction work has ceased.
- Replace topsoil to the original depth.
- Place topsoil in the same area from where it was stripped as far as possible. If there is insufficient topsoil available from a particular soil zone to produce the minimum specified depth, topsoil of similar quality may be brought from other areas of similar quality. The suitability of

substitute material will be determined by a soil analysis addressing soil fraction, fertility, pH, and drainage.
- Do not use topsoil suspected to be contaminated with the seed of alien vegetation (e.g. black wattle).

Ripping and scarifying:
- Rip and/or scarify all areas following the application of topsoil to facilitate mixing of the uppermost layers. Whether ripping and/or scarifying is necessary will be based on the site conditions immediately before these works begin.
- Rip and/or scarify all disturbed (and other specified) areas of the construction site, including temporary access routes and roads, compacted during the execution of the works.
- In instances where soil compaction has taken place, the compaction must be reversed.
- Rip and/or scarify along the contour to prevent the creation of down-slope channels.
- Do not rip and/or scarify areas under wet conditions, as the soil will not break up.

Planting/grassing:
- Indigenous vegetation will be used where possible, considering the EA, pre-construction specialist report and HRRP (refer to Fauna and Flora Management).
- All planting and grassing is to be undertaken by suitably experienced contractors using appropriate equipment at designated areas.
- Where required, an on-site nursery may be established, or a commercial nursery used.
- Sodding may be done at any time of the year, but seeding must be done by sowing appropriate seed mixtures only between 1 October and 31 January.
- Hydroseeding with a winter mix will only be specified where re-grassing is urgent and cannot wait for the summer.
- Establish further specifications for sods, runners and hand seeding.

Maintenance:
- Control the exotic or invasive plants in accordance with the Fauna and Flora Management measures.
- Monitor the regrowth of invasive vegetative material.
- Apply the above to failed areas or alternative applications recommended by the ecologist or suitably qualified specialist.
- The rehabilitation should be completed by the end of the defects notification period of the construction contract.
- Only when the rehabilitation has been completed and signed off by the ECO will the project be closed out.

Relevant Conditions/Requirements of the EA:

Requirements of the amended EA:

- Condition 37 – *A comprehensive habitat rehabilitation and restoration plan must be developed for all construction and work sites and must be submitted to the Department for approval. This Plan must be informed by the available biodiversity information, baseline studies, and pre-construction surveys. The plan must be reviewed by EDTEA and EKZNW prior to submission to the Department. The Department will provide a written response within a period of 30 days*.
- Condition 39 – *All areas affected by construction should be rehabilitated upon completion of the construction phase of the development to its pre-construction state where possible in line with good practice and the principle of duty of care*.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the contractors.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Monitoring against the HRRP, once available and approved by DFFE.
- Rehabilitation activities.
- Public complaints and issues, and responses.
- Record of signed rehabilitation sheets.
- Recorded evidence of spillages and corrective actions.
- Disposal certificates for fuel-contaminated waste and soil.
- Soil contamination assessment and remediation records.
- Rehabilitation of decommissioned bulk fuel storage areas.
- ECO close-out inspection and photographic records.

13.1.17 Habitat Rehabilitation and Restoration Plan Framework

In accordance with Conditions 14 and 37 of the amended EA, the EMPr and Closure Plan includes a framework for the preparation of an HRRP. The purpose of this framework is not to replace the detailed HRRP required by the EA, but rather to establish the minimum requirements, management objectives, implementation principles, monitoring requirements and reporting obligations that must be incorporated into the detailed HRRP. The detailed HRRP must be prepared by suitably qualified specialists, informed by baseline studies, ecological walk-through surveys, soil investigations, and final design information, and submitted to the DFFE for approval before commencement of the relevant construction activities.

The HRRP shall establish the rehabilitation and restoration requirements for all temporary disturbance areas and other areas requiring rehabilitation associated with the Project and shall ensure that disturbed areas are returned to a stable, self-sustaining and ecologically functional condition that is compatible with the surrounding environment and agreed rehabilitation end land-use.

Management Objectives:

- Minimise the extent and duration of disturbance associated with construction and operation activities.
- Rehabilitate disturbed areas as soon as reasonably practicable following completion of construction activities.
- Restore stable landforms and drainage systems.
- Prevent erosion, sedimentation and land degradation.
- Protect and conserve topsoil resources.
- Re-establish indigenous vegetation and habitat structure.
- Restore ecological function and connectivity where reasonable and practicable.
- Prevent the establishment and spread of alien invasive plant species.
- Protect and restore sensitive habitats such as wetlands, riparian areas, grasslands and other habitats of conservation importance.
- Establish rehabilitation targets and measurable success criteria.
- Identify residual impacts that cannot be rehabilitated and ensure these are incorporated into the BOCP, as relevant.

Indicators and Targets:

Indicator	Target
Rehabilitation undertaken in accordance with the approved HRRP	100% compliance
Topsoil salvaged and reused where practicable	100% compliance
Rehabilitation of temporary disturbance areas	100% compliance
Significant erosion associated with disturbed areas	Nil
Active alien invasive species control implemented	100% compliance
Rehabilitation monitoring completed	100% compliance
Rehabilitation records maintained	100% compliance
Disturbance outside approved footprint	Nil

Management Actions:

The HRRP shall include, as a minimum:

- Baseline Surveys and Planning -
  - Ecological walk-through surveys and habitat assessments.
  - Laboratory analysis of representative soil samples.
  - Identification and mapping of habitats requiring rehabilitation.
  - Rehabilitation area schedules and target end land use.

- Rehabilitation Measures -
  - Habitat-specific rehabilitation measures for each affected project footprint.
  - Topsoil stripping, storage and replacement requirements.
  - Revegetation and habitat restoration measures.
  - Rehabilitation planning and implementation shall take account of seasonal constraints, including rainfall patterns, planting seasons, vegetation establishment requirements and site-specific ecological conditions. Where rehabilitation cannot occur during the optimal rehabilitation season, implement temporary stabilisation measures and complete rehabilitation during the next correct rehabilitation period.
  - Nursery and propagation requirements where applicable.
  - Rehabilitation requirements for sensitive habitats, including wetlands, rivers, riparian areas and natural grasslands.
- Alien Invasive Plant Species Control -
  - Identification of priority alien invasive species.
  - Control and eradication measures.
  - Follow-up monitoring and maintenance requirements.
- Biodiversity Offset Integration -
  - The HRRP shall identify habitats and ecological features that cannot be rehabilitated and ensure that these residual impacts are incorporated into the BOCP.

Responsibilities:

- The Consultant shall prepare the HRRP.
- The Contractor shall implement the approved HRRP.
- The Consultant shall review rehabilitation measures and monitor rehabilitation progress.
- The EO shall undertake routine inspections of rehabilitation areas and maintain rehabilitation records.
- The ECO shall independently monitor compliance with the approved HRRP, EA and EMPr and Closure Plan.
- TCTA shall remain accountable for ensuring that the HRRP is prepared, approved and implemented.

Monitoring Requirements:

The HRRP shall include monitoring requirements for:

- Vegetation establishment and recovery.
- Soil stability and erosion.
- Alien invasive plant species.
- Habitat recovery and ecological functionality.
- Rehabilitation success criteria.
- Corrective and adaptive management measures.

13.1.18 Biodiversity Offset and Compensation Plan Framework

The uMWP-1 will result in residual impacts on biodiversity that cannot be fully addressed through avoidance, minimisation and rehabilitation.

In accordance with Conditions 14, 15.1 and 33 of the EA and amended EA, the EMPr and Closure Plan includes a framework for the preparation of a BOCP. The purpose of this framework is not to replace the detailed BOCP required by the EA, but rather to establish the minimum requirements, management objectives, implementation principles, monitoring requirements and reporting obligations that must be incorporated into the detailed BOCP. The detailed BOCP must be prepared by a suitably qualified specialist and be submitted to the DFFE for approval before commencement of the relevant construction activities.

Management Objectives:

- Offset goal:
  - The proposed goal of biodiversity offsets implemented under the uMWP-1 is to achieve 'No Net Loss' and preferably a net gain with respect to a full spectrum of functions and values provided by both terrestrial and aquatic ecosystems.
- Desired outcomes, based on the National Biodiversity Offset Guidelines (2023):
  - That biodiversity is secured in the long term through the protection and appropriate management of ecosystems and species.
  - That efforts to protect biodiversity in the long term contribute to the expansion of South Africa's protected area network, and are focused in areas identified as biodiversity priorities, with particular emphasis on the consolidation of protected areas and biodiversity priority areas and securing effective ecological links between priority areas.
  - That ecological infrastructure and the services and benefits it provides are maintained and where necessary restored to an acceptable level.
  - That the cumulative impact of the authorised activity, or activities, and land and resource use change does not -
    - Result in the loss of irreplaceable biodiversity or jeopardise the ability to meet biodiversity targets;
    - Lead to any ecosystem with a threat status of Vulnerable or Least Concern becoming Endangered, or any Endangered ecosystem becoming Critically Endangered;
    - Cause an irreversible decline in the conservation status of species and the presence of special habitats; or
    - Cause a significant loss in ecosystem services.
- Offset principles:
  - Offsets are the final option in the mitigation hierarchy.
  - Ecological equivalence (like-for-like) is the preferred offset type.
  - Residual impacts on irreplaceable biodiversity cannot be offset.
  - Additionality.

- The significance of residual impacts on biodiversity must be considered in decision-making involving biodiversity offsetting.
- Biodiversity offsets should embody the ecosystem approach and promote connectivity in the wider landscape.
- Biodiversity offsets must result in long-term protection and management of priority biodiversity.
- Biodiversity offset design must be evidence-based and transparent.
- Offsets must follow a risk-averse and cautious approach.
- Offsets must be fair and equitable.
- Offset intervention timing.
- Biodiversity offsets must be measurable, auditable and enforceable.

Indicators and Targets:

Indicators and targets will be determined as part of the BOCP by the specialists.

Management Actions:

Conditions of the EA:

Requirements of the EA and amended EA:

- Condition 14 of the EA - *The Environmental Management Programme (EMPr) submitted as part of the EIAr is hereby approved for preparatory construction work only, however, it must be amended to incorporate the requirements for site- specific plans and the that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan*.
- Condition 15.1 of the amended EA– *The detailed final Biodiversity Offset and Compensation Plan developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife. The plan must include the following*:
  - *Finalised site selection.*
  - *Landowner engagement and agreement regarding suitable legal, financial and stewardship mechanism for the offsets.*
  - *Detailed design and planning of rehabilitation action and restoration plan.*
  - *Necessary authorisation, licences and permits needed to implement rehabilitation structures where necessary.*
  - *Defined budgets for offsets implementation based on the finalisation of the details of all of the above.*
  - *Binding agreements and Terms of Reference between role-players for the implementation of the biodiversity offsets.*
  - *Drawn programme of work for implementation of offsets on particular sites.*
- Condition 33 – *The detailed Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and EKZNW and must be approved by this Department prior to construction commencing on any part or aspect of the development. The Department will provide written response within a period of 30 days*.

- *The Biodiversity Offset and Compensation plan submitted for approval must be accompanied by a binding MoA between the Applicant and EKZNW, and the MoA must clearly define the roles and responsibilities of each party.*
- *The EA holder is not allowed to deviate from any requirements of the Biodiversity Offset plan during the implementation stage of the plan.*
- *The preparation of the detailed Biodiversity Offset Plan must coincide and run concurrently with the preparation of the designs for the Smithfield Dam and its associated infrastructure. Implementation, excluding the long-term management, of the Biodiversity Offsets Plan must coincide and run concurrently with the construction of the dam and its associated infrastructure.*
- *A specialist must be appointed to evaluate progress in relation to the implementation and management of the Biodiversity Offset Plan requirements and they must submit reports every six months to be tabled for discussion at the EMC meetings.*

BOCP Framework:

The framework of the BOCP is tabulated below.

Component	Framework Requirement
1. Determine Residual Impacts	Residual impacts will be determined using the final Project footprints and updated biodiversity information, taking into account ecosystem condition, biodiversity importance, SCC and the expected effectiveness of rehabilitation.
2. Determine Offset Requirements	The required terrestrial offset quantum will be determined using appropriate condition-based hectare equivalents and applicable offset multipliers. Wetland offset requirements will be determined using the applicable wetland offset methodology and calculator.
3. Ecological Equivalence	Offset areas should, as far as practicable, achieve ecological equivalence through a like-for-like or better approach. Opportunities to “trade up” to biodiversity of greater conservation importance may be considered where appropriate and agreed with the relevant authorities.
4. Offset Site Selection	Candidate offset sites will be assessed against biodiversity and contextual criteria, including ecological equivalence, No Net Loss/Net Gain potential, additionality, SCC conservation, ecological connectivity, contribution to protected-area expansion and the feasibility of securing the land for long-term conservation.
5. Landowner Engagement and Site Security	Willing landowners are fundamental to successful implementation. Appropriate legal, financial and/or stewardship mechanisms will be established to secure selected offset areas and provide for their long-term conservation and management.
6. Species-specific Compensation	Where required, specific compensation measures will be developed for residual impacts on SCC, based on current information, specialist recommendations, best practice and consultation with EKZNW and EDTEA.
7. Offset Management	Site-specific management measures will be defined for selected offset sites and may include habitat rehabilitation/restoration, alien invasive plant control, fire and grazing management, habitat protection and SCC-specific conservation measures.

Component	Framework Requirement
8. Implementation Agreements	Binding agreements will be concluded between the relevant role-players to define responsibilities, implementation arrangements, land management obligations, funding and long-term security of the offset.
9. Monitoring and Adaptive Management	Clear and measurable biodiversity targets and performance indicators will be established. Offset performance will be monitored and audited, with corrective and adaptive management measures implemented where monitoring indicates that the required outcomes are not being achieved.
10. Long-term Protection	Offset sites will be secured and managed to provide long-term biodiversity conservation benefits and, where feasible, contribute to ecological connectivity and expansion or consolidation of protected and biodiversity priority areas.
11. BOCP Implementation	The detailed BOCP will define the final offset sites, management actions, responsibilities, implementation programme, monitoring requirements, budgets, agreements and mechanisms for securing the offset areas.

Where suitable offset receiving sites cannot be secured, a lump-sum investment in protected area expansion or the establishment of a new protected area, implemented through an appropriate conservation authority such as EKZNW, may be considered as an alternative biodiversity compensation mechanism, subject to approval by the relevant authorities. This approach will seek to deliver additional and long-term biodiversity conservation outcomes, including the protection of biodiversity of equivalent or higher ecological value, where practicable. This will typically include:

- Preparing a compensation framework to determine the costs associated with implementing the required biodiversity offsets and achieving the identified conservation outcomes;
- Establishing mechanisms to ensure that funding is secured or ring-fenced for its intended long-term biodiversity conservation and management purposes;
- Engaging with EKZNW regarding the establishment of an appropriate implementation agreement; and
- Obtaining approval from DFFE for the proposed approach to ensure alignment with the requirements of the EA and amended EA.

Responsibilities:

- TCTA to ensure that the BOCP is finalised and implemented in accordance with the EA and EMPr and Closure Plan.
- Specialist to compile the BOCP.
- The BOCP Implementing Agent is responsible for implementation, coordination and ongoing management of the BOCP in accordance with its approved requirements.
- EDTEA and EKZNW to provide regulatory and technical input into the development and implementation of the BOCP.
- The ECO shall independently monitor compliance with the EA-related requirements relating to the BOCP during construction.
- Specialist to evaluate progress in relation to the implementation and management of the BOCP's requirements.

Monitoring Requirements:

Monitor the implementation and effectiveness of the BOCP against defined biodiversity management, performance and desired outcome targets. Monitoring must assess whether the offset remains adequate to counterbalance residual biodiversity impacts and whether the desired outcomes are being achieved. Where monitoring identifies that targets are not being met, appropriate corrective and adaptive management measures must be implemented.

13.1.19 Closure Activity Management

Closure activities associated with the construction phase may include the decommissioning and removal of temporary construction facilities, bulk fuel storage areas and infrastructure that becomes redundant following completion of the relevant construction activities. This may include temporary roads, haul roads, bridges, watercourse crossings, buildings, services, hardstands and other temporary or redundant infrastructure.

Infrastructure may only be removed where this is consistent with the approved Project design and relevant environmental approvals, and where any additional approvals required for its decommissioning or removal have been obtained.

Management Objectives:

- Ensure that authorised temporary and redundant infrastructure is safely decommissioned and removed, where required.
- Prevent pollution and environmental degradation during closure activities.
- Ensure that waste and demolition material are appropriately managed.
- Reinstate and rehabilitate affected areas to a condition compatible with the post-construction land use.
- Ensure that closure activities comply with applicable environmental approvals and legal requirements.

Indicators and Targets:

Indicator	Target
Infrastructure removed without the necessary approval	Nil
Uncontrolled pollution or release of hazardous substances during closure	Nil
Closure waste reused, recycled or disposed of at an appropriately authorised facility	100% compliance
Areas disturbed by closure activities rehabilitated in accordance with the approved HRRP or post-construction land use	100% compliance
Closure records retained	100% compliance

Management Actions:

Decommissioning/Closure of Infrastructure

- Obtain any approvals, permits or agreements required for the decommissioning or removal of infrastructure before the relevant activity commences in accordance with applicable legislation.
- Undertake decommissioning and demolition activities in a manner that prevents pollution, erosion, sedimentation, damage to watercourses and unnecessary disturbance outside the approved work area.
- Maintain safe access and appropriate traffic accommodation where the decommissioning of roads or bridges may affect road users or surrounding communities.
- Separate materials for reuse, recycling or disposal, where practicable, and dispose of waste at an appropriately authorised facility.
- Reinstate natural drainage patterns and rehabilitate areas disturbed by closure activities in accordance with the approved HRRP.
- Retain records of infrastructure removed, together with the applicable approvals, waste records and rehabilitation records in compliance with relevant permit/authorisation conditions.

Decommissioning of bulk fuel storage areas

- Confirm the quantities and types of fuel remaining in all tanks, pipelines, pumps and dispensing equipment before decommissioning commences.
- Remove all remaining fuel from tanks, pipelines and dispensing equipment and transfer it to an approved operational facility or registered service provider.
- Isolate, drain, depressurise and make all tanks, pipelines and associated equipment safe before dismantling or removal.
- Ensure that tank cleaning, purging, dismantling and removal are undertaken by suitably trained and competent personnel in accordance with applicable safety requirements.
- Maintain bunding, impermeable surfaces, spill-control equipment and stormwater protection measures until all fuel, sludge, contaminated wash water and equipment have been removed.
- Prevent fuel, sludge, contaminated water or cleaning agents from entering the soil, stormwater system or any watercourse during decommissioning.
- Collect all tank-bottom sludge, contaminated absorbents, wash water and other fuel-contaminated materials in suitable, labelled containers for removal by an appropriately authorised waste service provider.
- Inspect tanks, pipelines, valves, pumps and dispensing areas for evidence of leakage before removal.
- Inspect the bunded area, loading and dispensing points, drainage structures and surrounding soil for visible staining, hydrocarbon odours or other evidence of contamination.
- Undertake soil sampling by a suitably qualified specialist where leakage or contamination is suspected or identified.
- Immediately contain and clean up any spill or release occurring during decommissioning in accordance with the approved emergency response procedure.

- Remove contaminated soil and manage, treat or dispose of it at an appropriately authorised facility, unless an alternative remediation approach has been approved by the relevant authority or recommended by a relevant specialist.
- Notify the relevant authority where contamination meets the applicable notification requirements for a potentially contaminated investigation area.
- Retain disposal certificates, waste manifests, laboratory results and records of fuel transferred or recovered as part of the closure record.
- Remove all tanks, pipelines, pumps, dispensers, concrete slabs, bunding and other associated infrastructure.
- Do not bury, abandon or leave redundant tanks, pipelines or contaminated materials within the construction area.
- Backfill excavations with non-contaminated material and reinstate the natural drainage pattern without creating ponding, erosion pathways or preferential flow routes.
- Rip compacted surfaces, replace topsoil and rehabilitate disturbed areas in accordance with the approved HRRP.
- Monitor rehabilitated areas for erosion, hydrocarbon staining, poor vegetation establishment or evidence of residual contamination, and implement corrective measures where required.
- Obtain written confirmation from the ECO that the fuel storage area has been satisfactorily cleared, rehabilitated and closed before the Contractor demobilises from the site.

Responsibilities:

- The Contractor will implement the Management Actions.
- The Consultant will review/approve, monitor and inspect the Management Actions by the Contractor.
- The ECO will check compliance with the EA and the EMPr and Closure Plan.
- TCTA will be accountable for the Management Objectives.

Monitoring Requirements:

- Records of infrastructure removed or handed over.
- Applicable approvals, permits and agreements.
- Waste manifests, recycling records and disposal certificates.
- Records of spillages, contamination assessments and corrective actions.
- Rehabilitation and photographic records.
- ECO closure inspection records.

13.2 Operation Phase

13.2.1 Operation and Maintenance Manual

An operation and maintenance manual will be prepared prior to operation and maintenance and will include, *inter alia,* the following*:*

- Operating rules that include the consideration of EWR and downstream users.
- Main access roads and procedures for accessing the dam and associated infrastructure.

Management Objective:

Ensure operation and maintenance activities associated with the development adhere to environmental requirements and do not result in environmental damage.

Indicators and Targets:

Indicator	Target
Issue a manual that has clear environmental obligations	100% compliance

Management Actions:

Operation and Maintenance Manual

Draft the operation and maintenance manual, which must provide for the following:

- Dam safety management;
- Operational rules;
- Maintenance of firebreaks where required;
- Maintenance of surface water management systems;
- Management of ablution/conservancy tank system;
- Assess and include details of other monitoring requirements and obligations;
- Access roads and access control requirements;
- Shoreline management;
- Control of Alien Invasive Plants (aquatic and terrestrial); and
- Aquatic and Terrestrial Biodiversity Management.

Relevant Conditions/Requirements of the EA:

Requirements of the EA

- Condition 30 – *A written notification of operation must be given to the Department no later than fourteen (14) days prior to the commencement of the activity operational phase*.
- Condition 31 – *Should the activity ever cease or become redundant, the holder of the authorisation must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and Competent Authority at that time*.

Responsibilities:

- TCTA will be responsible for the implementation of the Management Actions insofar as issuing the manual to the owner and operator of the new government water works, being the DWS.
- DWS will be accountable for the operation and maintenance in accordance with the manual.
- The Operation and Maintenance Manual will be copied to DFFE for information.

Monitoring Requirements:

Operation and maintenance manual.

14 REFERENCES

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Paul. B. 2026b. Habitat Rehabilitation and Restoration Plan for the Proposed uMkhomazi Water Project Phase One: Raw Water Component – Smithfield Dam and Associated Infrastructure, KwaZulu-Natal Province. Elemental Sustainability (Pty) Ltd, Pretoria, Gauteng.

ANNEXURE A

ENVIRONMENTAL AUTHORISATIONS

ANNEXURE A1

Environmental Authorisation – uMWP-1: Raw Water Component – Construction of Smithfield Dam and Associated Infrastructure (14/12/16/3/3/3/94)

environment, forestry
& fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA ·0001· Environment House ·473 Steve Biko Road, Arcadia· PRETORIA

DEA Reference: 14/12/16/3/3/3/94
Enquiries: Ms Masina Litsoane
Telephone: [redacted] E-mail: [redacted]

Mr Kobus Bester
Department of Water and Sanitation
Private Bag X313
PRETORIA
0001

Telephone Number:
Email Address: [redacted]

PER EMAIL / MAIL

Dear Mr Bester

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT NO. 107 OF 1998, AS AMENDED: FOR THE UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT – CONSTRUCTION OF SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE WITHIN DR NKOSAZANA DLAMINI ZUMA, IMPENDLE AND MSUNDUZI LOCAL MUNICIPALITIES IN THE KWAZULU-NATAL PROVINCE

With reference to the above application, please be advised that the Department has decided to grant authorisation. The Environmental Authorisation (EA) and reasons for the decision are attached herewith.

In terms of Regulation 4(2) of the Environmental Impact Assessment Regulations, 2014, as amended (the EIA Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 14 (fourteen) days of the date of the decision as well as the provisions regarding the submission of appeals that are contained in the Regulations.

In terms of the Promotion of Administrative Justice Act, Act No. 3 of 2000, you are entitled to the right to fair, lawful and reasonable administrative action; and to written reasons for administrative action that affects you negatively. Further your attention is drawn to the provisions of the Protection of Personal Information Act, Act No. 4 of 2013 which stipulates that the Department should conduct itself in a responsible manner when collecting, processing, storing and sharing an individual or another entity's personal information by holding the Department accountable should the Department abuse or compromise your personal information in any way.

Your attention is drawn to Chapter 2 of National Environmental Management Act, Act No. 107 of 1998 National Appeal Regulations published under Government Notice R993 in Government Gazette No. 38303 dated 08 December 2014 (National Appeal Regulations, 2014), which prescribe the appeal procedure to be followed. Kindly include a copy of this document (National Appeal Regulations, 2014) with the letter of notification to interested and affected parties in this matter.

Should any person wish to lodge an appeal against this decision, he/she must submit the appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered interested and affected party, and any organ of state with interest in the matter within 20 days from the date that the notification of the decision was

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sent to the registered interested and affected parties by the applicant; or the date that the notification of the decision was sent to the applicant by the Department, whichever is applicable.

Appeals must be submitted in writing in the prescribed form to:

The Director: Appeals and Legal Review of this Department at the below mentioned addresses.

By email: appeals@environment.gov.za;

By hand: Environment House
473 Steve Biko
Arcadia
Pretoria
0083; or

By post: Private Bag X447
Pretoria
0001

Please note that in terms of Section 43(7) of the National Environmental Management Act, Act No. 107 of 1998, as amended, the lodging of an appeal will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

To obtain the prescribed appeal form and for guidance on the submission of appeals, please visit the Department's website at https://www.environment.gov.za/documents/forms#legal_authorisations or request a copy of the documents at appeals@environment.gov.za.

Yours faithfully

Mr Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Environment, Forestry and Fisheries
Date: 18/11/2020

cc:	Donavan Henning	Nemai Consulting (Pty) Ltd	Email: [redacted]
	Ian Felton	KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	Email:
	Ashantia Nerissa Pillay	Ezemvelo KZN Wildlife	Email:

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environment, forestry & fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Environmental Authorisation

In terms of Regulation 25 of the Environmental Impact Assessment Regulations, 2014

The uMkhomazi Water Project Phase 1: Raw Water Component – Construction of the Smithfield Dam and its associated infrastructure

Harry Gwala and uMgungundlovu District Municipalities

Authorisation register number:	*14/12/16/3/3/3/94*
Last amended:	*First issue*
Holder of authorisation:	*Department of Water and Sanitation*
Location of activity:	*Portion 5 of the Farm The Rest 2142; Portions 2,3 28 and 29 of the Farm 16615; Portion 1 of the Farm Camden 1824; Portions 1,3,and 0 of the Farm Lot 93 1821; Portion 0, 1, and 2 of the Farm Lot 85 1815; Portions 0, 1, 3, and 4 of the Farm Crowle 2260; Portion o of the Farm Smithfield 14746; Portions 0, 3, and 7 of the Farm Nooitgedacht 1026, The Mzunduzi, Impendle and Dr Nkozazana Dlamini Zuma Local Municipalities; Harry Gwala and uMgungundlovu District Municipalities; Kwa-Zulu Natal Province.*

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

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Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this Environmental Authorisation, that the applicant should be authorised to undertake the activities specified below.

Non-compliance with a condition of this Environmental Authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, Act No. 107 of 1998, as amended and the EIA Regulations, 2014, as amended.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment Regulations, 2014, as amended, the Department hereby authorises –

DEPARTMENT OF WATER AND SANITATION

(hereafter referred to as the **holder of the authorisation**)

with the following contact details –

Mr Kobus Bester
Department of Water and Sanitation
Private Bag X313
PRETORIA
0001
Tel: [redacted]
Cell:
E-mail:

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to undertake the following activities (hereafter referred to as "the activity") indicated in Listing Notice 1, Listing Notice 2 and Listing Notice 3 as amended (GN R. 983, 984 and 985 as amended):

Activity number	**Activity description**
Listing Notice 1 Item 9: *"The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water-* *(i) with an internal diameter of 0,36 metres or more; or* *(ii) with a peak throughput of 120 litres per second or more;* *excluding where-* *(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve; or* *(b) where such development will occur within an urban area.*	Bulk water infrastructure associated with Smithfield Dam.
Listing Notice 1 Item 11: *"The development of facilities or infrastructure for the transmission and distribution of electricity—* *(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or* *(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;* *excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —* *(a) temporarily required to allow for maintenance of existing infrastructure;* *(b) 2 kilometres or shorter in length;* *(c) within an existing transmission line servitude; and*	A section (approximately 700m) of an existing high voltage Eskom transmission line, known as the Bulwer/Elandskop 88kV line, will become inundated by the Smithfield Dam. This power line will need to be relocated.

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(d) will be removed within 18 months of the commencement of development.	
Listing Notice 1 Item 12: *"The development of -* *(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or* *(ii) infrastructure or structures with a physical footprint of 100 square metres 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 metres of a watercourse, measured from the edge of a watercourse; -*	• The uMkhomazi River will be affected by Smithfield Dam. • A flow gauging station is proposed on the uMkhomazi River, downstream of the dam wall. • Tributaries of the uMkhomazi River will be affected by (a) inundation from the dam, (b) crossings for associated infrastructure (e.g. access road crossings, power lines, culverts, footprints of infrastructure intruding into the floodplain / 32 m buffer area along watercourses, etc.).
Listing Notice 1 Item 14 *(ii) "The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.*	"Dangerous goods" that are likely to be associated with the greater project, are fuel stores used during the construction and operational phases.
Listing Notice 1 Item 19: *"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres 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;*	The uMkhomazi River and its tributaries will be affected during the construction of various dam related infrastructure, gauging weir, linking pipelines, access roads and relocated of existing infrastructure.

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(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.*	
Listing Notice 1 Item 24: *"The development of a road -* *(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or* *(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres*	Access roads to the various sites (dam wall, outlet structure, etc.) as well as relocation of roads that will be inundated..
Listing Notice 1 Item 27: *"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-* *(i) the undertaking of a linear activity; or* *(ii) maintenance purposes undertaken in accordance with a maintenance management plan.*	Smithfield Dam's inundation footprint and clearance of areas associated with the construction footprint.
Listing Notice 1 Item 28: *"Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:* *(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or*	Parts of project footprint were historically used for agricultural purposes. Operators' housing and offices to be built.

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(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	
Listing Notice 1 Item 30: *"Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)."*	The proposed project impacts on biodiversity, as documented in the Final EIA Report, as well as in the First and Second Addenda.
Listing Notice 1 Item 31: *"The decommissioning of existing facilities, structures or infrastructure for -* *(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;* *(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;* *(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or* *(v) any activity regardless the time the activity was commenced with, where such activity:* *(a) is similarly listed to an activity in (i) or (ii) above; and* *(b) is still in operation or development is still in progress;*	Decommissioning of fuel storage areas after construction.
Listing Notice 1 Item 48: *"The expansion of -* *(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or*	Expansion of infrastructure associated with the development with a physical footprint of 100 square metres or more within watercourse(s) / within 32 m from watercourse(s), including existing access roads.

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(ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; *where such expansion occurs -* *(a) within a watercourse;* *(b) in front of a development setback; or* *(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;*	
Listing Notice 1 Item 56: *"The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre-* *(i) where the existing reserve is wider than 13,5 meters; or* *(ii) where no reserve exists, where the existing road is wider than 8 metres;* *excluding where widening or lengthening occur inside urban areas.*	Widening or lengthening of existing roads to create access roads, and for the relocation of roads that will be inundated.
Listing Notice 1 Item 67: *"Phased activities for all activities—* *(i) listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices* *ii) listed as activities 5, 7, 8(ii), 11, 13, 16, 27(i) or 27(ii) in Listing Notice 2 of 2014 or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.*	Possible phased activities that may collectively trigger this listed activity.

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Listing Notice 2 Item 11: *"The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following -* *(i) water catchments;* *(ii) water treatment works; or* *(iii)impoundments;* *excluding treatment works where water is to be treated for drinking purposes.*	Water is transferred from the uMkhomazi River (from Smithfield Dam) to the Western Aqueduct at a rate of 8.65m³/s.
Listing Notice 2 Item 15: *"The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-* *(i) the undertaking of a linear activity; or* *(ii)maintenance purposes undertaken in accordance with a maintenance management plan.*	Cumulative area to be cleared of indigenous vegetation (except linear components) exceeds 20 hectares. The water surface area at full supply level (FSL) for Smithfield Dam is 953 Ha.
Listing Notice 2 Item 16: *"The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.*	Dam wall height for Smithfield Dam will exceed this threshold. The wall height above river level (max. height) is 81 m for the main dam wall and 26 m for the saddle dam wall.
Listing Notice 2 Item 27: *"The development of a road -* *(iii) with a reserve wider than 30 metres; or* *(iv) catering for more than one lane of traffic in both directions;*	Relocation of existing road R617, which is administered by the Kwazulu-Natal Department of Transport, due to the inundation footprint of the Smithfield Dam.
Listing Notice 3 Item 4(d)(viii), (xi) and (xii): *"The development of a road wider than 4 metres with a reserve less than 13,5 metres.* *(d) In KwaZulu-Natal:*	Access roads to the various sites (dam wall, outlet structure, etc.) as well as relocation of roads that will be inundated, which are located in areas that are deemed to be important from a biodiversity perspective.

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(viii) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; *(xi) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(xii) Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or* *(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;*	
<u>Listing Notice 3 Item 10(d)(ix), (xii) and (xiii):</u> *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.* *(d) <u>In KwaZulu-Natal:</u>* *(ix) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(xii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(xiii) Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any*	Temporary storage of dangerous goods (e.g. fuel) during the construction phase. Possible occurrence of sensitive biodiversity features in the project area.

other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; *(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or* *(cc) Areas within 100 metres from the edge of a watercourse;*	
Listing Notice 3 Item 12(b)(iv), (v) and (xii): *"The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan:* *(b) In KwaZulu-Natal:* *(iv) 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;* *(v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(xii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority."*	Construction activities will involve clearance of indigenous vegetation in areas designated to be sensitive.
Listing Notice 3 Item 14(d)(vii), (viii) and (x)(aa) *"The development of -* *(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or*	Development of dam wall and associated infrastructure in watercourses, within areas designated to be sensitive.

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(ii) infrastructure or structures with a physical footprint of 10 square metres or more; *where such development occurs -* *(a) within a watercourse; -* *(b) in front of a development setback; or* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;* *(d) In KwaZulu-Natal:* *(vii) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(viii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(x) Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve*	
<u>Listing Notice 3 Item 18(d)(viii), (xi) and (xii):</u> *"The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre:* *(d) <u>In KwaZulu-Natal:</u>* *(viii) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans* *(xi) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(xii) Outside urban areas:*	Widening or lengthening access roads as well as relocation of roads that will be inundated, within areas designated to be sensitive.

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(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or *(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is Determined."*	
Listing Notice 3 Item 23(d)(viii) and (x) *"The expansion of -* *(i) dams or weirs where the dam or weir is expanded by 10 square metres or more; or* *(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs -* *(a) within a watercourse;* *(b) in front of a development setback adopted in the prescribed manner; or* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse:* *(d) In KwaZulu-Natal:* *(viii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* *(x) Outside urban areas:* *(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve.*	Expansion of infrastructure associated with the development by 10 square metres or more within watercourse(s) / within 32 m from watercourse(s), including existing access roads, within areas designated to be sensitive.
Listing Notice 3 Item 26 *"Phased activities for all activities -*	Possible phased activities that may collectively trigger this listed activity.

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(i). listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; or *(ii) similarly listed in any of the previous NEMA notices, and as it applies to a specific geographical area, which commenced on or after the effective date of such previous NEMA Notices—* *where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold;."*	

as described in the Environmental Impact Assessment Report (EIAr) dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively at:

SG 21 Code

SG Code	Farm	Portion
N0FS00000000214200005	The Rest 2142	5
N0FS00000001661500002	16615	2
N0FS00000001661500003	16615	3
N0FS00000001661500028	16615	28
N0FS00000001661500029	16615	29
N0FS00000000182400001	Camden 1824	1
N0FS00000000182100001	Lot 93 1821	1
N0FS00000000182100003	Lot 93 1821	3
N0FS00000000182100000	Lot 93 1821	0
N0FS00000000181500000	Lot 85 1815	0
N0FS00000000181500001	Lot 85 1815	1
N0FS00000000181500002	Lot 85 1815	2
N0FS00000000226000003	Crowle 2260	3
N0FS00000000226000001	Crowle 2260	1
N0FS00000000226000004	Crowle 2260	4
N0FS00000000226000000	Crowle 2260	0

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N0FS00000001479600000	Smithfield 14796	0
N0FS00000000102600003	Nooitgedacht 1026	3
N0FS00000000102600007	Nooitgedacht 1026	7
N0FS00000000102600000	Nooitgedacht 1026	0

- for the construction of the Smithfield Dam and its associated infrastructure within the Msunduzi, Impendle and Dr Nkosazana Dlamini Zuma Local Municipalities in the Kwa-Zulu Natal Province, hereafter referred to as "the property".

UMWP-1 Raw Water Component: Smithfield Dam and its associated infrastructure:

Raw Water Component	Associated Infrastructure
Smithfield Dam	1. Dam embankment 2. Saddle dam embankment 3. Spillway (including approach area and plunge pool) 4. Tunnel intake tower 5. Dam outlet works (including dam intake tower, tunnel and outlet valve house) 6. Deviation of the R617 7. Access road to Nonguqa 8. Access road to intake tower 9. Access road to tunnel inlet portal 10. Access road to damwall 11. Construction roads 12. Relocation of power line 13. Relocation of telephone lines 14. Quarries and earthfill borrow areas 15. Substation 16. Operator's offices 17. Gauging weir 18. Access road to gauging weir 19. Hydropower plant 20. Spoil site - inlet 21. Construction and permanent housing

Technical details of the Smithfield Dam:

Parameter	Description
General	
Name	Smithfield Dam
Purpose	Bulk water supply
River	uMkhomazi River
Nearest town	Richmond
District	KwaZulu-Natal
Location	29°46'33.36" S; 29°56'26.62" E
Classification: Category	III
Size class	Large

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Hazard potential	High	
Non-overspill crest level	RL 936 masl	
Full supply level (FSL)	RL 930 m	
Gross storage capacity at FSL	220 million m³	
Water surface area at FSL	953 Ha	
	Main wall	**Saddle wall**
Wall height above river level (Max. height)	81 m (855 masl to 936 masl)	26 m (910 masl to 936 masl)
Type of dam wall	Earth core rockfill	Zoned earth fill
Crest length	1 200 m	1 090 m
Spillway type	Side channel	Fuse plug
Spillway form	Ogee	Broad crested
Spillway length	150 m	100 m
Freeboard	6 m	2 m
Hydrology and floods		
Catchment area	2 058 km²	
Safety evaluation flood	5 650 m³/s	
Regional maximum flood	4 540 m³/s	
Q1:100	2 389 m³/s	
Q1:200	2 620 m³/s	
Outlet works		
Dam Outlet	Dual pipe system of ND 1.8 m 6 intakes Butterfly and gate valves	
Tunnel Inlet	Tri pipe system of ND 2m 6 Intakes Butterfly and gate valves	
Description of dam wall foundations	The site comprises of shales (mudrocks) with sub-ordinate sandstones and intrusions of dolerite. Three near-horizontal dolerite sills have intruded mainly concordantly into the sedimentary strata and are responsible for the narrow river valley at the dam site and the presence of good quality rock for concrete aggregate and rockfill.	

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Conditions of this Environmental Authorisation

Scope of authorisation

1. Authorisation is granted for the construction of the Smithfield Dam without balancing dam and its associated infrastructure within the Msunduzi, Impendle and Dr Nkosazana Dlamini Zuma Local Municipalities in the Kwa-Zulu Natal Province. Developmental Alternative B with the selection of Option 1B as the preferred realignment of the R617 is hereby approved.
2. Authorisation of the activity is subject to the conditions contained in this Environmental Authorisation, which form part of the Environmental Authorisation and are binding on the holder of the authorisation.
3. The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this Environmental Authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.
4. The activities authorised may only be carried out at the property as described above.
5. Any changes to, or deviations from, the project description set out in this Environmental Authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further Environmental Authorisation in terms of the regulations.
6. The holder of an Environmental Authorisation must apply for an amendment of the Environmental Authorisation with the Competent Authority for any alienation, transfer or change of ownership rights in the property on which the activity is to take place.
7. This activity must commence within a period of ten (10) years from the date of issue of this Environmental Authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for Environmental Authorisation must be made in order for the activity to be undertaken.
8. Construction must be completed within five (05) years of the commencement of the activity on site.
9. Commencement with one activity listed in terms of this Environmental Authorisation constitutes commencement of all authorised activities.

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Notification of authorisation and right to appeal

10. The holder of the authorisation must notify every registered interested and affected party, in writing and within 14 (fourteen) calendar days of the date of this Environmental Authorisation, of the decision to authorise the activity.
11. The notification referred to must –
    11.1. specify the date on which the authorisation was issued;
    11.2. inform the interested and affected party of the appeal procedure provided for in the National Appeal Regulations, 2014;
    11.3. advise the interested and affected party that a copy of the authorisation will be furnished on request; and
    11.4. give the reasons of the Competent Authority for the decision.

Commencement of the activity

12. The authorised activity shall not commence until the period for the submission of appeals has lapsed as per the National Appeal Regulations, 2014, and no appeal has been lodged against the decision. In terms of Section 43(7), an appeal under Section 43 of the National Environmental Management Act, Act No. 107 of 1998, as amended will suspend the Environmental Authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged you may not commence with the activity until such time that the appeal has been finalised.

Management of the activity

13. A copy of the final site layout map must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g. roads. The layout map must indicate the following:
    13.1.1. Position of the entire dam and associated infrastructure;
    13.1.2. Foundation footprint;
    13.1.3. Internal roads indicating width;

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13.1.4. Wetlands, drainage lines, rivers, stream and water crossing of the dam's associated infrastructure;

13.1.5. All sensitive features e.g. heritage sites, wetlands, pans and drainage channels that will be affected by the dam and associated infrastructure;

13.1.6. All existing infrastructure on the site, especially roads;

13.1.7. Soil heaps (temporary for topsoil and subsoil and permanently for excess material);

13.1.8. Temporary construction laydown areas;

13.1.9. Heritage sites that will be affected by the new dam and associated infrastructure;

13.1.10. Borrow pits;

13.1.11. Buildings, including accommodation; and,

13.1.12. All "no-go" and buffer areas.; and

13.1.13. A map combining the final layout plan superimposed (overlain) on the environmental sensitivity map with **the co-ordinates of all associated infrastructure**.

14. The Environmental Management Programme (EMPr) submitted as part of the EIAr is hereby NOT approved and it must be amended to incorporate all the details that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan; and must also include measures as dictated by the final dam designs, and the provisions of this environmental authorisation. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity. Once approved the EMPr must be implemented and adhered to.

15. The amended EMPr must include the following:

15.1. The detailed final Biodiversity Offset and Compensation Plan developed in consultation with relevant stakeholders including *inter alia,* EDTEA and Ezemvelo KZN Wildlife. The plan must include the following:

15.1.1. Finalised site selection.

15.1.2. Landowner engagement and agreement regarding suitable legal, financial and stewardship mechanism for the offsets.

15.1.3. Detailed design and planning of rehabilitation action and restoration plan.

15.1.4. Necessary authorisation, licences and permits needed to implement rehabilitation structures where necessary.

15.1.5. Defined budgets for offsets implementation based on the finalisation of the details of all of the above.

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15.1.6. Binding agreements and Terms of Reference between role-players for the implementation of the biodiversity offsets.

15.1.7. Drawn programme of work for implementation of offsets on particular sites.

15.2. The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment. The plan must:

15.2.1. Identify and map degraded and declining ecological infrastructure in the upper uMkhomazi catchment.

15.2.2. Identify appropriate interventions aimed in restoring, improving and maintaining identified areas.

15.2.3. Include detailed design and plan for rehabilitation, restoration and maintenance actions.

15.3. A rescue and relocation plan for the floral species of conservation significance that cannot be accommodated within the development footprint.

16. An environmental Monitoring Committee (EMC) must be established by the holder of the authorisation before commencement of construction activities.

16.1. The EMC must meet before the commencement of construction activities (to appoint a chairperson and to discuss terms of reference); from then on the EMC must sit once every two months and /or on a quarterly basis (depending on the circumstances and in agreement with this Department).

16.2. The EMC shall consists of, *inter alia,* representatives from all Departments that have jurisdiction over the area, relevant organs of state and key stakeholders identified during the public participation process including the ECO.

16.3. The EMC shall be responsible for:

16.4. The on-going and continuous development of the EMPr applicable to the development.

16.5. Monitoring adherence and compliance to the approved EMPr.

16.6. Making necessary amendments to the operational EMPr as and when required.

16.7. The recommendations and mitigation measures proposed by the EMC shall be submitted to the Department for approval. Once approved, the EMPr must be implemented and adhered to.

Frequency and process of updating the EMPr

17. The EMPr must be updated where the findings of the environmental audit reports, contemplated in Condition 25 below, indicate insufficient mitigation of environmental impacts associated with the undertaking of the activity, or insufficient levels of compliance with the environmental authorisation or EMPr.

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18. The updated EMPr must contain recommendations to rectify the shortcomings identified in the environmental audit report.
19. The updated EMPr must be submitted to the Department for approval together with the environmental audit report, as per Regulation 34 of the EIA Regulations, 2014 as amended. The updated EMPr must have been subjected to a public participation process, which process has been agreed to by the Department, prior to submission of the updated EMPr to the Department for approval.
20. In assessing whether to grant approval of an EMPr which has been updated as a result of an audit, the Department will consider the processes prescribed in Regulation 35 of the EIA Regulations, 2014 as amended. Prior to approving an amended EMPr, the Department may request such amendments to the EMPr as it deems appropriate to ensure that the EMPr sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
21. The holder of the authorisation must apply for an amendment of an EMPr, if such amendment is required before an audit is required. The amendment process is prescribed in Regulation 37 of the EIA Regulations, 2014, as amended. The holder of the authorisation must request comments on the proposed amendments to the impact management outcomes of the EMPr or amendments to the closure objectives of the closure plan from potentially interested and affected parties, including the competent authority, by using any of the methods provided for in the Act for a period of at least 30 days.

Monitoring

22. The holder of the authorisation must appoint an experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this environmental authorisation are implemented and to ensure compliance with the provisions of the approved EMPr.
    22.1. The ECO must be appointed before commencement of any authorised activities.
    22.2. Once appointed, the name and contact details of the ECO must be submitted to the *Director: Compliance Monitoring* of the Department.
    22.3. The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.
    22.4. The ECO must remain employed until all rehabilitation measures outlined in the implementation and restoration plans are fully implemented.

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Recording and reporting to the Department

23. All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this environmental authorisation, must be submitted to the *Director: Compliance Monitoring* of the Department.
24. The holder of the environmental authorisation must, for the period during which the environmental authorisation and EMPr remain valid, ensure that project compliance with the conditions of the environmental authorisation and the EMPr are audited, and that the audit reports are submitted to the *Director: Compliance Monitoring* of the Department.
25. The frequency of auditing and of submission of the environmental audit reports must be as per the frequency indicated in the EMPr, taking into account the processes for such auditing as prescribed in Regulation 34 of the EIA Regulations, 2014 as amended.
26. The holder of the authorisation must, in addition, submit environmental audit reports to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities.
27. The environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014 as amended and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the approved EMPr.
28. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Notification to authorities

29. A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number.

Operation of the activity

30. A written notification of operation must be given to the Department no later than fourteen (14) days prior to the commencement of the activity operational phase.

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Site closure and decommissioning

31. Should the activity ever cease or become redundant, the holder of the authorisation must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and Competent Authority at that time.

Specific conditions

Conditions for Non-operational aspects

32. The final detailed dam designs and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities.
33. The detailed final Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development.

(i) The Biodiversity Offset and Compensation plan submitted for approval must be accompanied by a binding Memorandum of Agreement between the Applicant and Ezemvelo KZN Wildlife and the MoA must be clearly define the roles and responsibilities of each party.

(ii) The EA holder is not allowed to deviate from any requirements of the Biodiversity Offset plan during the implementation stage of the plan.

(iii) The implementation process of Biodiversity Offset must coincide and run concurrently with the commencement process for the construction of the dam and its associated infrastructure which, will draw its guidance from the EMPr.

(iv) A specialist must be appointed to evaluate progress in relation to the implementation and management of the Biodiversity Offset Plan requirements and they must submit reports every six months to be tabled for discussions at the EMC meetings.

34. A Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval prior to construction commencing on any part or aspect of the development.
35. A pre-construction survey of the final development footprint must be conducted to ascertain the identity and exact number of individual protected species affected by the proposed development prior to the commencement of construction.
36. All relevant permits must be obtained from EKZNW's Permits Office; for rescue and relocation of floral species of conservation significance; the removal or destruction of indigenous, protected or endangered plant or animal species that cannot be accommodated within the development footprint. Copies of the

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permit/s must also be included in the final EMPr to be submitted to this Department for approval before commencement of construction activities.

37. A comprehensive habitat rehabilitation and restoration plan must be developed for the site and must be submitted to the Department for approval prior to construction commencing on any part or aspect of the development. Restoration must be undertaken as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
38. The tunnelling and blasting activities must be undertaken during the migration period of the Blue Swallows, (April – September).
39. No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised.
40. Construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.
41. Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made.
42. An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of Section 20 (b) of the National Environment Management Waste Act, 2008 (Act No.59 of 2008).

General

43. A copy of this Environmental Authorisation, the audit and compliance monitoring reports, and the approved EMPr, must be made available for inspection and copying-

43.1. at the site of the authorised activity;

43.2. to anyone on request; and

43.3. where the holder of the Environmental Authorisation has a website, on such publicly accessible website.

44. National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the holder of the authorisation or his/her successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons

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of non-compliance by the holder of the authorisation with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

Date of Environmental Authorisation: 18/11/2020

Mr Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Environment, Forestry and Fisheries

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Annexure 1: Reasons for Decision

1. Information considered in making the decision

In reaching its decision, the Department took, *inter alia,* the following into consideration -

a) The listed activities as applied for in the application form received on 10 October 2018.

b) The information contained in the EIAr dated November 2016; First and Second Addenda dated August 2018 and September 2020 respectively.

c) The comments received from KZN: Department of Economic Development, Tourism and Environmental Affairs, the Ezemvelo KZN Wildlife and interested and affected parties as included in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively

d) Mitigation measures as proposed in the EIAr and the EMPr.

e) The information contained in the specialist studies contained within the appendices of the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and as appears below:

Title	Prepared by	Date
Terrestrial Fauna and Flora Assessment Report	Avhafarei Ronald Phamphe: Nemai Consulting Scientific Aquatic Services CC	October 2016 March 2020
Aquatic Impact Assessment	Dr Mathew Ross: EnviRoss CC Scientific Aquatic Services	January 2016 March 2020
Biodiversity Offset Study	Scientific Aquatic Services	July 2018 March 2020
Avifaunal Impact Assessment	WildSkies Ecological Services	September 2015
Vibration Impact Assessment	JH CONSULTING: Acoustics, Noise & Vibration Control	September 2016
Noise Impact Assessment	ENVIRO-ACOUSTIC RESEARCH	December 2019
Agricultural and Soils Impact Assessment	Dr A Gouws and Dr E Gouws: INDEX	May 2015
Socio-Economic impact assessment	Sameera Munshi: Nemai Consulting	February 2016
Sediment Impact Assessment	AK Theron and GR Basson	November 2015

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Social Impact Assessment	Dr Neville Bews & Associates	February 2016
Visual Impact Assessment	AXIS LANDSCAPE ARCHITECTS (CC)	September 2015
Traffic Impact Assessment	AECOM SA (Pty) Ltd	June 2015
Heritage Impact Assessment	Jean Beater & Frans Prins	May 2015
EMPr	Aurecon SA	April 2019

2. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below.

a) The findings of all the specialist studies conducted and their recommended mitigation measures.

b) The need for the proposed project is to meet the long-term water requirements of the Mgeni Water Supply System.

c) The EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively identified all legislation and guidelines that have been considered in the preparation of the EIAr.

d) The methodology used in assessing the potential impacts identified in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and the specialist studies have been adequately indicated.

e) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations, 2014 as amended for public involvement.

3. Findings

After consideration of the information and factors listed above, the Department made the following findings -

a) The identification and assessment of impacts are detailed in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and sufficient assessment of the key identified issues and impacts have been completed.

b) The procedure followed for impact assessment is adequate for the decision-making process.

c) The information contained in the EIAr dated November 2016; First and Second Addenda dated August 2018 and September 2020 respectively is deemed to be accurate and credible.

d) The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.

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e) EMPr measures for the pre-construction, construction and rehabilitation phases of the development were proposed and included in the EIAr and will be implemented to manage the identified environmental impacts during the construction phase.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the authorised activities will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the authorised activities can be mitigated to acceptable levels. The environmental authorisation is accordingly granted.

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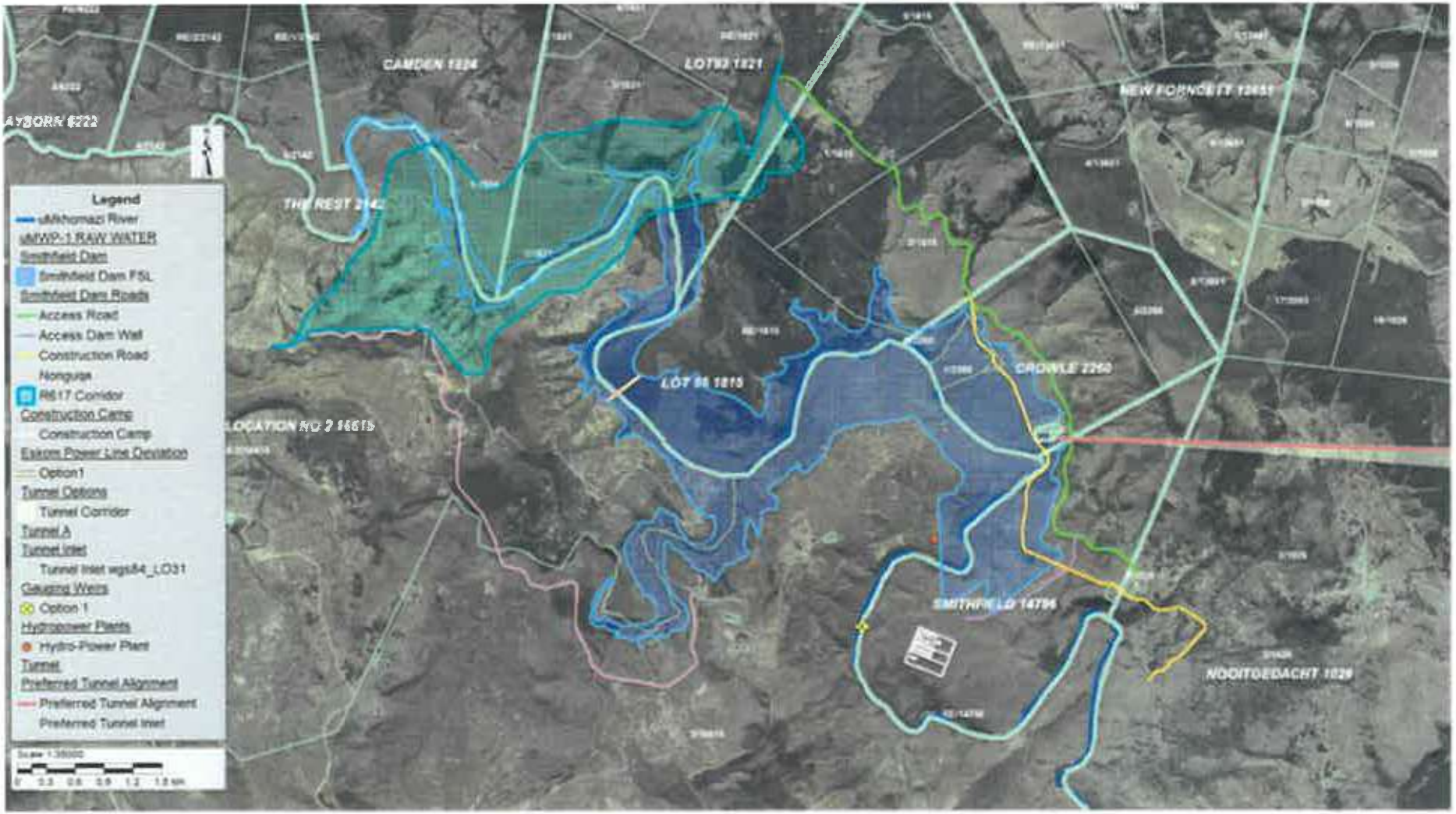
Annexure 2: Locality Plan



UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT Smithfield Dam and associated infrastructure

ANNEXURE A2

Amended Environmental Authorisation – uMWP-1: Raw Water Component – Construction of Smithfield Dam and Associated Infrastructure (14/12/16/3/3/3/94/AM2)

forestry, fisheries
& the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA 0001· Environment House 473 Steve Biko Road, Arcadia· PRETORIA

DFFE Reference: 14/12/16/3/3/3/94/AM2
Enquiries: [redacted]
Telephone: [redacted] **E-mail:** [redacted]

Mr Kobus Bester
Department of Water and Sanitation
Private Bag X313
PRETORIA
0001

Telephone Number: [redacted]
Email Address:

PER EMAIL / MAIL

Dear Mr Bester

AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION ISSUED ON 18 NOVEMBER 2020 FOR THE UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT – CONSTRUCTION OF SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE WITHIN DR NKOSAZANA DLAMINI ZUMA, IMPENDLE AND MSUNDUZI LOCAL MUNICIPALITIES IN THE KWAZULU-NATAL PROVINCE

The Environmental Authorisation (EA) issued for the abovementioned application by this Department on 18 November 2020 and your application for amendment of the EA received by the Department on 26 July 2021, and the acknowledgement letter dated 05 August 2021, refer.

Based on a review of the reason for requesting an amendment to the above EA, this Department, in terms of Chapter 5 of the Environmental Impact Assessment Regulations, 2014 as amended, has decided to amend the EA dated 18 November 2020, as follows:

Amendment 1: Extension of project construction completion by 5 years:

Condition 8 on page 16 of the EA:

"*Construction must be completed within five (05) years of the commencement of the activity on site.*"

Is amended to:

"Construction must be completed within **ten (10) years** of the commencement of the activity on site."

Reason for amendment:

This condition is impractical, based on the project programme and the nature and scale of the construction activities. The main activities will take at least 5 years which exclude preparatory work and scheme commissioning.

Amendment 2: Rewording of Condition 13 of the EA:

"A copy of the final site layout map must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map."

Is amended to:

"A copy of the detailed site layout map must be made available for comments by registered Interested and Affected Parties for a period of 30 days and the holder of this environmental authorisation must consider such comments. Once amended, the development layout map must be submitted to the Department for written approval prior to commencement of construction activities. All available biodiversity information, baseline studies, and pre-construction surveys must be used in the finalisation of the layout map. The Department will provide written response within a period of 30 days."

Reason for amendment:

It is proposed that this condition be amended to specify the abovementioned timeframes to avoid any ambiguity and to allow for project planning. It must be noted also that the final site layout map will be informed by the baseline studies to be undertaken and/or pre-construction surveys, therefore these activities will take place prior to the submission of the final site layout map for approval – usually progressive and throughout tender/construction period. It is therefore possible that certain information will not be available at a certain point in time during the project life-cycle.

Amendment 3: Rewording of Condition 14 of the EA:

"The Environmental Management Programme (EMPr) submitted as part of the EIAr is hereby not approved and it must be amended to incorporate all the details that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan; and must also include measures as dictated by the final dam designs, and the provisions of this environmental authorisation. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity."

Is amended to:

"The Environmental Management Programme (EMPr) submitted as part of the EIAr is hereby approved for preparatory construction work only, however, it must be amended to incorporate the requirements for site-specific plans and the that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity.
The following site-specific plans must be prepared with the incorporation of a phased approach and be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final plans must be submitted to the Department for written approval prior to commencement of the activity. The Department will provide written response within a period of 30 days. These plans include inter alia:

- Search, Rescue and Relocation Plan;
- Storm Water Management Plan;
- Habitat Rehabilitation and Restoration Plan

Reason for amendment:

The Biodiversity Offset and Compensation Plan, which needs to form part of the amended EMPr according to the EA, will take a considerable time to complete. This requirement will hold up the baseline work that needs to be undertaken, such as the detailed geotechnical investigations, fauna and flora assessments, ground truthing and other preparatory work that will inform the design work. It is proposed that the amended EMPr provide the requirements for the Biodiversity Offset and Compensation Plan, and other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 4: Rewording of Condition 15 of the EA:

"The amended EMPr must include the following....."

Is amended to:

"The following plans must be submitted to this Department for approval....."

Reason for amendment:

The detailed Plans will be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 5: Rewording of Condition 15.2 of the EA:

"*The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment:*

- *Identify and map degraded and declining ecological features.*
- *Identify interventions to restore, improve and maintain the above,*
- *Detailed design and plan for rehabilitation, restoration, and maintenance."*

Is amended to:

"*The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment must:*

- *Identify and map degraded and declining ecological features in the uMkhomazi Catchment above the Smithfield Dam;*
- *Identify interventions to restore, improve and maintain the ecological features in the uMkhomazi catchment above the Smithfield Dam; and;*
- *Develop a strategic framework plan to guide, coordinate and direct interventions aimed at the rehabilitation, restoration, and maintenance of ecological infrastructure in the uMkhomazi catchment above the Smithfield Dam."*
- *Provide a Framework for funding and implementation."*

Reason for amendment:

The uMkhomazi River has an enormous catchment (in excess of 200 000 ha) and substantial and lengthy work would be required as part of the Catchment and Ecological Infrastructure Management Plan. It is noted that Umgeni Water is already undertaking the work, however, due the size of upper catchment, the study is focussed on micro-catchments, i.e. key focal areas. Furthermore, the Institute of Natural Resources (INR) with input from Umgeni Water recently completed a Scoping study on behalf of the Nature Conservancy that investigated

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opportunities to establish a Water Fund to improve water security through Ecological Infrastructure (EI). The Upper uMkhomazi Catchment was identified as having high potential to benefit from these EI investments.
Firstly, and considering work by Umgeni Water and the INR, it is proposed that the amended EMPr provide a strategic Catchment and Ecological Infrastructure Management Plan. The strategic Plan will then be compiled separately from the EMPr. This will prevent delaying the baseline work required for the project, considering that the aforementioned catchment is above the dam basin.
Secondly, it should also be noted that this Condition may be ambiguous. The current interpretation is that the cost of the planning, design and implementation of the EI be borne by the Applicant as part of the dam project. It is assumed however, that the intention of this condition is that a framework be prepared whereby strategic interventions be directed or developed so that all parties undertaking EI restoration and rehabilitation can be directed in the Catchment to be more efficient and effective. As the INR and Umgeni Water is already involved in such initiatives and the feasibility study as indicated above is planned for this Catchment, it proposed that this condition be amended such that the requirement is to contribute to the existing initiatives such that a strategic plan is prepared for the Catchment.

Amendment 6: Amendment to include Condition 16.8 to the EA:

The inclusion of 16.8 is as follows:

"The EMC must remain e functional until all rehabilitation measures outlined in and habitat rehabilitation and plans are fully implemented. The EMC will not be functional during the long-term operation and maintenance of the ecosystems and biodiversity offsets."

Reason for amendment:

This condition is silent on the period of establishment of the EMC.

Amendment 7: Rewording of Condition 32 of the EA:

"The final detailed dam designs and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities."

Is amended to:

"The **Tender Design Report for the** dam and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities."

Reason for amendment:
The approval of the dam designs is a function of DWS under the National Water Act (Act No. 36 of 1998), which requires that all designs must be done by Approved Professional Persons (who must also be a registered professional engineer) and submitted to the DWS Dam Safety Office. A substantial volume of documents is generated for the approval process. Furthermore, design work is also undertaken during construction and in a progressive manner, e.g. the final designs for the foundations can only be determined during the excavations. In order to satisfy this condition, it is proposed that this condition be amended to specify that the Tender Design Report be provided to DEFF.

Amendment 8: Rewording of Condition 33 of the EA:

"The detailed final Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development."

Is amended to:

"The detailed Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development. **The Department will provide written response within a period of 30 days**."

Reason for amendment:

The EA condition is amended to specify the abovementioned timeframes to avoid any ambiguity and to allow for project planning.

Amendment 9: Rewording of Condition 33 (iii) of the EA:

"The implementation process of Biodiversity Offset must coincide and run concurrently with the commencement process for the construction of the dam and its associated infrastructure which, will draw guidance from the EMPr."

Is amended to:

"The preparation of the detailed Biodiversity Offset Plan must coincide and run concurrently with the preparation of the designs for the Smithfield Dam and its associated infrastructure. Implementation, excluding the long-term management, of the Biodiversity Offsets Plan must coincide and run concurrently with the construction of the dam and its associated infrastructure."

Reason for amendment:

The Biodiversity Offset and Compensation Plan, which needs to form part of the amended EMPr according to the EA, will take a considerable time to complete. This requirement will hold up the baseline work that needs to be undertaken, such as the detailed geotechnical investigations, fauna and flora assessments, ground truthing and other preparatory work that will inform the design work. It is proposed that the amended EMPr provide the requirements for the Biodiversity Offset and Compensation Plan, and other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 10: Rewording of Condition 34 of the EA:

"A Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval prior to construction commencing on any part or aspect of the development."

Is amended to:

"A **strategic** Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval."

Reason for amendment:

The uMkhomazi River has an enormous catchment (in excess of 200 000 ha) and substantial and lengthy work would be required as part of the Catchment and Ecological Infrastructure Management Plan. It is noted that

Umgeni Water is already undertaking the work, however, due the size of upper catchment, the study is focussed on micro-catchments, i.e. key focal areas. Furthermore, the Institute of Natural Resources (INR) with input from Umgeni Water recently completed a Scoping study on behalf of the Nature Conservancy that investigated opportunities to establish a Water Fund to improve water security through Ecological Infrastructure (EI). The Upper uMkhomazi Catchment was identified as having high potential to benefit from these EI investments.
Firstly, and considering work by Umgeni Water and the INR, it is proposed that the amended EMPr provide a strategic Catchment and Ecological Infrastructure Management Plan. The strategic Plan will then be compiled separately from the EMPr. This will prevent delaying the baseline work required for the project, considering that the aforementioned catchment is above the dam basin.
Secondly, it should also be noted that this Condition may be ambiguous. The current interpretation is that the cost of the planning, design and implementation of the EI be borne by the Applicant as part of the dam project. It is assumed however, that the intention of this condition is that a framework be prepared whereby strategic interventions be directed or developed so that all parties undertaking EI restoration and rehabilitation can be directed in the Catchment to be more efficient and effective. As the INR and Umgeni Water is already involved in such initiatives and the feasibility study as indicated above is planned for this Catchment, it proposed that this condition be amended such that the requirement is to contribute to the existing initiatives such that a strategic plan is prepared for the Catchment.

Amendment 11: Rewording of Condition 35 of the EA:

"A pre-construction survey of the final development footprint must be concluded to ascertain the identity and exact number of individual protected species affected by the proposed development prior to the commencement of construction."

Is amended to:

"A preconstruction survey of the final development footprint must be undertaken to ascertain the identity and the exact number of individual protected species affected by the proposed development prior to the commencement of construction. The pre-construction survey must be used to inform the plant search, rescue and relocation plan. The timing of the implementation of the plant rescue and relocation within the development footprints must be aligned with the construction programme and as far as it is practically possible incorporating a phased approach and allow for multiple season plant rescue and relocation."

Reason for amendment:

A pre-construction survey is required for the preparation of the Rescue and Relocation Plan. To produce this Plan the pre-construction survey of the final development footprint must be undertaken, however, due to the extent and nature of project, landowners are sometimes allowed to continue with activities on their land for as long as possible to allow for e.g. the completion of crop cycles, relocation of infrastructure, etc. The main construction area will be at the dam wall, whilst other areas to be inundated will not be required immediately. A pre-construction survey of the entire development footprint will therefore not be possible prior to the commencement of construction activities and may occur in a phased approach. Site-specific plans will then be prepared prior to the relevant construction activity.

Amendment 12: Rewording of Condition 36 of the EA:

"All relevant permits must be obtained from EKZNW's Permits Office; for rescue and relocation of floral species of conservation significance; the removal or destruction of indigenous, protected or endangered plant, and animal species that cannot be accommodated within the development footprint. Copies of the permits must also be included in the final EMPr to be submitted to the Department for approval before commencement of construction activities."

Is amended to:

"Prior to removal, relocation or destruction of any protected or endangered plant and animal species that cannot be accommodated within the development footprint, all relevant permits must be obtained from **the relevant competent authority**. Copies of the permits must also be submitted to the Department for record keeping."

Reason for amendment:

It is proposed that the EMPr provide the requirements for the other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 13: Rewording of Condition 37 of the EA:

"A comprehensive habitat rehabilitation and restoration plan must be developed for the site and must be submitted to the Department for approval prior to construction commencing on any part or aspect of the development."

Is amended to:

"A comprehensive habitat rehabilitation and restoration plan must be developed for all construction and work sites and must be submitted to the Department for approval. This Plan must be informed by the available biodiversity information, baseline studies, and pre-construction surveys. The plan must be reviewed by EDTEA and EKZNW prior to submission to the Department. The Department will provide a written response within a period of 30 days."

Reason for amendment:

It is proposed that this condition be amended to specify the timeframe required by DEFF to review and decide on the Habitat Rehabilitation and Restoration Plan, in order to avoid any ambiguity and to allow for project planning.

Amendment 14 Amendment to remove Condition 38 from the EA:

Condition 38 is hereby removed from the EA dated 18 November 2020.

Reason for amendment:

Based on the findings of the Vibration Impact Assessment, which were contained in the first and second Addenda to the Final EIA Report, this condition is only applicable to the EA for the uMWP-1 Raw Water: Water Conveyance Infrastructure (DEFF reference no.: 14/12/16/3/3/3/94/1), based on the tunnel boring machine's (TBM) vibration radius of influence. Hence, this condition must be removed from the EA for the uMWP-1 Raw Water: Smithfield Dam and associated infrastructure (DEFF reference no.: 14/12/16/3/3/3/94).

Amendment 15: Rewording of Condition 39 of the EA:

"No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised."

Is amended to:

"All areas affected by construction should be rehabilitated upon completion of the construction phase of the development to its pre-construction state where possible in line with good practice and the principle of duty of care."

Reason for amendment:

Rehabilitation needs to consider the status of the vegetation prior to construction, such as cultivated areas or kikuyu pastures. Thus, the pre-existing environment will be re-instated except for areas that had indigenous plants.

This proposed amendment letter must be read in conjunction with the EA dated 18 November 2020.

In terms of the Promotion of Administrative Justice Act, 2000 (Act No 3 of 2000), you are entitled to the right to fair, lawful and reasonable administrative action; and to written reasons for administrative action that affects you negatively. Further your attention is drawn to the provisions of the Protection of Personal Information Act, 2013 (Act no. 4 of 2013) which stipulate that the Department should conduct itself in a responsible manner when collecting, processing, storing and sharing an individual or another entity's personal information by holding the Department accountable should the Department abuse or compromise your personal information in any way.

In terms of Regulation 4(2) of the Environmental Impact Assessment Regulations, 2014, as amended (the EIA Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 14 (fourteen) days of the date of the EA, of the Department's decision as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) National Appeal Regulations published under Government Notice R993 in Government Gazette No. 38303 dated 08 December 2014 (National Appeal Regulations, 2014), which prescribes the appeal procedure to be followed. Kindly include a copy of this document (National Appeal Regulations, 2014) with the letter of notification to interested and affected parties in this matter.

Should any person wish to lodge an appeal against this decision, he/she must submit the appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered interested and affected party, and any organ of state with interest in the matter within 20 days from the date that the notification of the decision was sent to the registered interested and affected parties by the applicant; or the date that the notification of the decision was sent to the applicant by the Department, whichever is applicable.

Appeals must be submitted in writing in the prescribed form to:

The Director: Appeals and Legal Review of this Department at the below mentioned addresses.

By email: appeals@environment.gov.za;

By hand: Environment House
473 Steve Biko Road,
Arcadia,
Pretoria,
0083; or

By post: Private Bag X447,
Pretoria,

MS

0001;

Please note that in terms of Section 43(7) of the National Environmental Management Act, Act No. 107 of 1998, as amended, the lodging of an appeal will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

To obtain the prescribed appeal form and for guidance on the submission of appeals, please visit the Department's website at https://www.environment.gov.za/documents/forms#legal_authorisations or request a copy of the documents at appeals@environment.gov.za.

Yours faithfully

Mr Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Forestry, Fisheries and the Environment
Date: 03/09/2021

cc:	Donavan Henning	Nemai Consulting (Pty) Ltd	Email: [redacted]
	Ian Felton	KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	Email:
	Ashantia Nerissa Pillay	Ezemvelo KZN Wildlife	Email:

M.S

ANNEXURE B

CURRICULA VITAE OF THE EAP

Curriculum Vitae

Queries: Donavan Henning
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✉ donavanh@nemai.co.za

1 Personal Particulars

Date of Birth:	1976-12-06
Name of Staff:	Donavan Henning
Years of Experience:	21
Nationality:	RSA

2 Education

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained
RAU (1995 – 1997)	B.Sc. Zoology and Biochemistry
RAU (1998)	B. Sc. Hons. Zoology
RAU (1999 – 2000)	M. Sc. Freshwater Ecology

3 Membership of professional bodies

- Environmental Assessment Practitioners Association of South Africa (EAPASA) (2020/1217).
- South African Council for Natural Scientific Professions (SACNASP) (400108/17).

4 Relevant Experience

1.	**Project Name:**	**Vaal Gamagara Regional Water Supply Scheme Phase 2**
	Client:	Sedibeng Water
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	Environmental Impact Assessment (EIA) and Water Use Licence Application (WULA). The scope included a bulk water pipeline (190 km), pump stations and reservoirs.
	Location:	Delportshoop to Olifantshoek, Northern Cape Province, RSA
	Dates:	Aug 2019 – Mar 2020
2.	**Project Name:**	**Mokolo Crocodile River West Water Augmentation Project Phase 2**
	Client:	Department of Water and Sanitation
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA and borrow pit applications. The scope included a weir on the Crocodile River, abstraction infrastructure (balancing dam, desilting woks, high-lift pumping station), transfer system (100 km), reservoirs, gravity pipeline (30 km) and gauging weirs.
	Location:	Thabazimbi to Lephalale, Limpopo Province, RSA
	Dates:	Feb 2018 – Sept 2019
3.	**Project Name:**	**Lower uMkhomazi Bulk Water Supply Scheme**
	Client:	Umgeni Water
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA and WULA. The scope included abstraction works, low-lift pipeline, rising main to Reservoir, gravity main and water treatment plant.
	Location:	Craigie Burn, KwaZulu-Natal Province, RSA
	Dates:	Aug 2017 – Sept 2018
4.	**Project Name:**	**Augmentation of the Western Cape Water Supply System (Voëlvlei Dam)**
	Client:	Department of Water and Sanitation

	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA and WULA. The scope included a low level weir on the Berg River, abstraction works, pump station, rising main pipeline from the Berg River to Voëlvlei Dam, and a potential new summer release connection at the existing Swartland Water Treatment Works.
	Location:	Gouda, Western Cape, RSA
	Dates:	Sept 2016 – Jul 2017
5.	**Project Name:**	**Foxwood Dam and associated infrastructure**
	Client:	Department of Water and Sanitation
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA, WULA and mining applications (quarries and borrow areas). The scope included a major storage dam, bulk water supply pipeline, gauging weir and relocation of infrastructure.
	Location:	Adelaide, Eastern Cape, RSA
	Dates:	Jun 2015 – Aug 2016
6.	**Project Name:**	**uMkhomazi Water Project Phase 1**
	Client:	Department of Water and Sanitation
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA, WULA and mining applications (quarries and borrow areas). The scope included a large storage dam (81 m high) on the uMkhomazi River, tunnel (32 km), gauging weir, balancing dam (46 m high) on Mbangweni River and raw water pipeline (5 km).
	Location:	Bulwer, KwaZulu-Natal Province, RSA
	Dates:	Aug 2013 – Nov 2020
7.	**Project Name:**	**Ncwabeni Off-Channel Storage Dam and associated infrastructure**
	Client:	Department of Water and Sanitation
	Position held:	Environmental Assessment Practitioner
	Actual duties performed:	EIA and WULA. The scope included an Off-Channel Storage Dam and outlet infrastructure to make measured releases back to the Mzimkhulu River, abstraction / gauging weir, abstraction works, pump station and pipeline.
	Location:	Port Shepstone, KwaZulu-Natal Province, RSA
	Dates:	Oct 2011 – Mar 2014