

ENVIRONMENTAL MANAGEMENT PROGRAMME

Casteel Dam Safety Rehabilitation Project (DSRP),
Remaining Extent of the Farm Kasteel 231-JU,
Bushbuckridge Local Municipality, Ehlanzeni District,
Mpumalanga Province



REPORT DATE: 20 June 2023

DFFE Ref. no: To be issued.

ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED CASTEEL DAM SAFETY REHABILITATION PROJECT (DSRP) ON THE REMAINING EXTENT OF THE FARM KASTEEL 231-JU, BUSHBUCKRIDGE LOCAL MUNICIPALITY, EHLANZENI DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE, SOUTH AFRICA (DFFE Ref no. Pending)

Prepared for:



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

National Department of Water and Sanitation (DWS)
Chief Directorate: Strategic Infrastructure Asset Management (SIAM)
Sedibeng Building, 185 Francis Baard Street, Pretoria, 0001
Private Bag X 313, Pretoria, 0001

Contact person 1: Mr John Kgopiso (Director)
Email: KgopisoJ@dws.gov.za
Contact person 2: Mr Rodney Siwelane (Project Manager)
Email: siwelanir@dwa.gov.za

Prepared by:



141 Thabo Mbeki Street
Polokwane, 0700
www.naledzi.co.za
Cell number: +2783-410-1477 / +2784-226-5584
Tel number: 087-550-1529
Fax: 087-550-1537
Email: botham@naledzi.co.za / dmusetsho@naledzi.co.za

Report author:

Marissa Ilse Botha
Senior Environmental Scientist
SACNASP Registered

.....
Marissa Botha, *Pr.Sci.Nat*

Reviewed by:

Prof. Desmond Musetsho
Managing Director
SACNASP and EAPASA Registered

.....
Desmond Musetsho, (PhD) *Pr.Sci.Nat*; M.Inst.D

Contents

1.	INTRODUCTION	1
2.	DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER.....	4
2.1	Details of EAP who prepared the EMPr	4
2.2	Expertise of the EAP who prepared the EMPr.....	5
2.3	Assumptions and Limitations	5
3	DETAILS OF APPLICANT (EA HOLDER).....	6
4	PROPOSED ACTIVITY	6
4.1	Project Components	6
4.2	Construction Workforce and Labour.....	8
4.3	Project Phases and Schedule	9
4.4	Validity Period of Environmental Authorisation	9
4.5	Composite Map	9
5	LEGISLATIVE REQUIREMENTS	12
5.1	Applicable Legislation	12
5.2	Applicable Permits/Approval to be obtained prior Construction roll-out.....	15
5.2.1	Consent from SANRAL.....	15
5.2.2	Heritage and Paleontological Record of Decision	15
5.2.3	Permits for Removal of Nationally Protected Trees	16
6	ENVIRONMENTAL MANAGEMENT PROGRAMME	17
6.1	Objective of the EMPr.....	17
6.2	DWS Chief Directorate: Construction Management (the Contractor).....	18
6.3	Monitoring and Auditing Requirements of the EMPr	18
6.4	Amendment to the EMPr.....	19
7	ENVIRONMENTAL MANAGEMENT, ROLES, AND RESPONSIBILITIES.....	19
7.1	DWS Project Manager.....	21
7.2	DWS Directorate Construction Management (the Contractor).....	21
8	ENVIRONMENTAL AWARENESS TRAINING	23
9	ASPECTS / IMPACTS ASSOCIATED WITH THE CASTEEL DSRP	24
10	RECOMMENDED ENVIRONMENTAL MANAGEMENT ACTIONS	25
10.1	Planning /Procurement Phase Prescribed Management Actions	26
10.1.1	SOCIAL AND ECONOMIC IMPACTS.....	26
10.1.2	HERITAGE AND CULTURAL RESOURCES/COMMUNITY CUSTOMS	26
10.1.3	TRAFFIC IMPACT	27
10.1.4	TERRESTRIAL BIODIVERSITY	27
10.2	Construction Phase Prescribed Management Actions	28

10.2.1	CONSTRUCTION SITE MANAGEMENT	28
10.2.2	TERRESTRIAL BIODIVERSITY (FAUNA AND FLORA).....	30
10.2.3	AQUATIC BIODIVERSITY	32
10.2.4	IMPACT ON CULTURAL AND HERITAGE RESOURCES	36
10.2.5	TRAFFIC IMPACT	36
10.2.6	NOISE, AIR QUALITY (DUST FALLOUT) AND VISUAL IMPACT	37
10.2.7	SOCIO ECONOMIC IMPACTS	39
10.2.8	WASTE MANAGEMENT	40
10.2.9	GROUND AND SURFACE WATER POLLUTION	42
10.2.10	HEALTH, SAFETY AND SECURITY	43
10.3	Decommissioning Phase of Construction Activities Prescribed Management Measures 45	
10.3.1	IMPACT ON TERRESTRIAL BIODIVERSITY	45
10.3.2	DECOMMISSIONING OF CONSTRUCTION SITE AND REHABILITATION OF DISTURBED AREAS	45
11	ADMINISTRATIVE REQUIREMENTS	47
11.1	Record Keeping	47
11.2	Emergency Preparedness to avoid pollution/degradation of the environment.	47
11.3	Penalties for Non-Compliance with the EMPR.....	48
12	CONCLUSION.....	49
	SIGN OFF BY ENVIRONMENTAL ASSESSMENT PRACTITIONER	50

List of Figures

Figure 1-1:	Regional Locality Plan showing the location of Casteel Dam, 15km North of Bushbuckridge Town along the R40 in the Mpumalanga Province.	2
Figure 1-2	Locality Plan showing the location of Casteel Dam, 15km North of Bushbuckridge Town in the Casteel Region.	3
Figure 1-3	Aerial Image showing location of the proposed rehabilitation/construction works (red polygon) at Casteel Dam near Casteel settlement.....	4
Figure 4-1:	Site Plan showing the location of the proposed rehabilitation works.	8
Figure 4-2:	8
Figure 4-3:	Composite Map illustrating the location of the rehabilitation works area (red polygon) in relation to the Channeled Valley Bottom Wetland, Drainage lines, Casteel Dam and the buffer zones (yellow polygon) to be upheld to such features.	10
Figure 4-4 :	Spatial presentation of vegetation communities and location of protected plant species within the study area. Image courtesy of Digital Earth, 2022.....	11
Figure 5-1:	Typical construction signs to be implemented on both sides of the R40/Casteel Dam access intersection.....	15
Figure 5-2:	A) Marula Tree, B) Fruits of a Marula tree, C) Marula tree leaves.	16
Figure 5-3:	A) Aloe barbertoniae (to be transplanted into adjacent habitat; B) Gladiolus cf. crassifolius.	17
Figure 7-1:	Roles, responsibilities, organizational and reporting	20

List of Tables

Table 1: Project Phases and Schedule.....	9
Table 2: Summary of applicable Legislation	12
Table 3: Objective of EMPr	17
Table 4: Summary of the significance of impacts pre-and post-mitigation.....	24
Table 5: Planning Phase Prescribed Management Actions.....	26
Table 6: Construction Phase Prescribed Management Actions	28
Table 7: Decommissioning Phase of Construction Activities Prescribed Management Measures ..	45

1. INTRODUCTION

The National Department of Water and Sanitation is proposing to conduct rehabilitation works at Casteel Dam to improve the safety of the dam and bring it into compliance with the Dam Safety Regulations and Chapter 12 of the National Water Act, 1998.

Casteel Dam a medium-sized earthen dam situated on the Remaining Extent of the farm Kasteel 231-JU, next to the R40 main Road, 15 km North of Bushbuckridge Town. The dam is in the jurisdiction of Bushbuckridge Local Municipality in the Ehlanzeni District of the Mpumalanga Province (**Figure 1-1 and 1-2**).

The DWS Chief Directorate: Construction Management will implement the repair works over a twenty-four (24) month period. The extent of works is approximately 4.2-hectares in size (**Figure 1-3**) and will be undertaken at the existing dam embankment.

This Environmental Management Programme (EMPr) has been prepared as a requirement in terms of Regulation 19 (1)(a) and Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended in 2017) promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA). The EMPr is submitted to the National Department of Forestry, Fisheries and Environment (DFFE) as part of the application for environmental authorisation.

Regulation 19 states that where a Basic Assessment must be applied to an application the applicant must submit a Basic Assessment Report, inclusive of specialist reports and an EMPr, which has been subject to a public participation process of at least 30 days, and which reflects the incorporation of comments received.

This EMPr document forms part of the Basic Assessment Report (BAR) compiled for the project in pursuit of obtaining Environmental Authorisation (EA) in terms of the NEMA. Various potential environmental aspects and impacts have been identified and considered in the BAR. These impacts require proactive management, which is achieved through the implementation of an EMPr. This EMPr should therefore be read in conjunction with the BAR and the EA (once issued by the DFFE).

The EMPr is a guideline document that sets out what needs to be considered to mitigate identified potential impacts and describes how this could be achieved. It is therefore not a specification of exact methods. The document provides a basis for managing, mitigating, and monitoring the environmental impacts associated with all phases of the project in terms of the NEMA.

The requirements/procedures are binding on the DWS: SIAM, who would be the holder of the EA once approved by the DFFE.

This section of the report serves to prescribe measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. The term 'mitigate' means to *'allay, moderate, palliate, temper, and intensify'*. In environmental terminology this term is used as follows:

- mitigation of a negative impact.
- to reduce the significance of an impact.
- mitigation/optimisation of a positive impact.

It is a working document; amendments can be made concerning management measures or the implementation of more stringent measures. If there are any changes to the EMPr, such will be submitted to the DFFE for approval before measures are implemented in the proposed Casteel DSRP. Advice on protocols for EMPr amendments are also discussed further in sections 6.4 of this document.

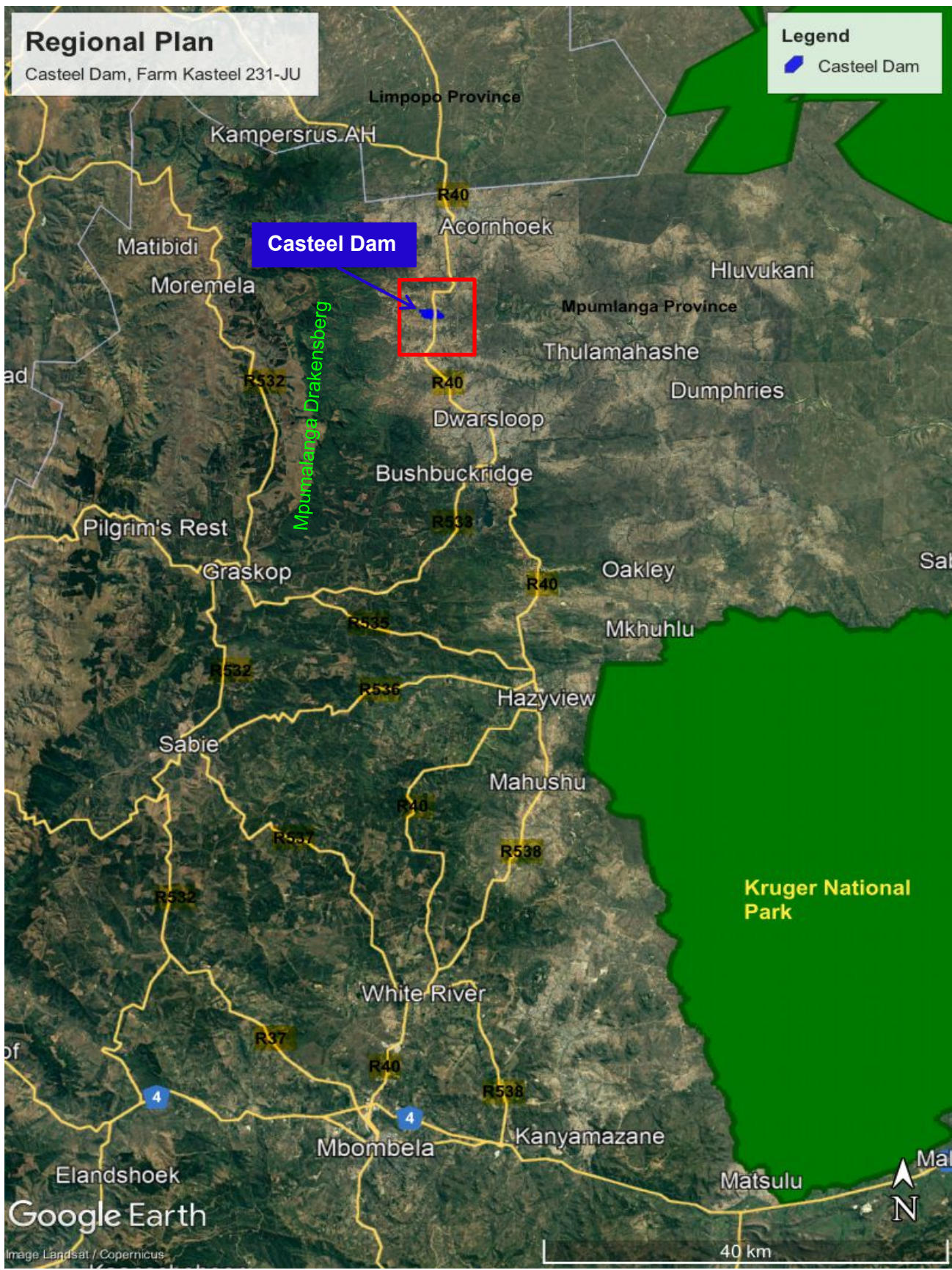


Figure 1-1: Regional Locality Plan showing the location of Casteel Dam, 15km North of Bushbuckridge Town along the R40 in the Mpumalanga Province.



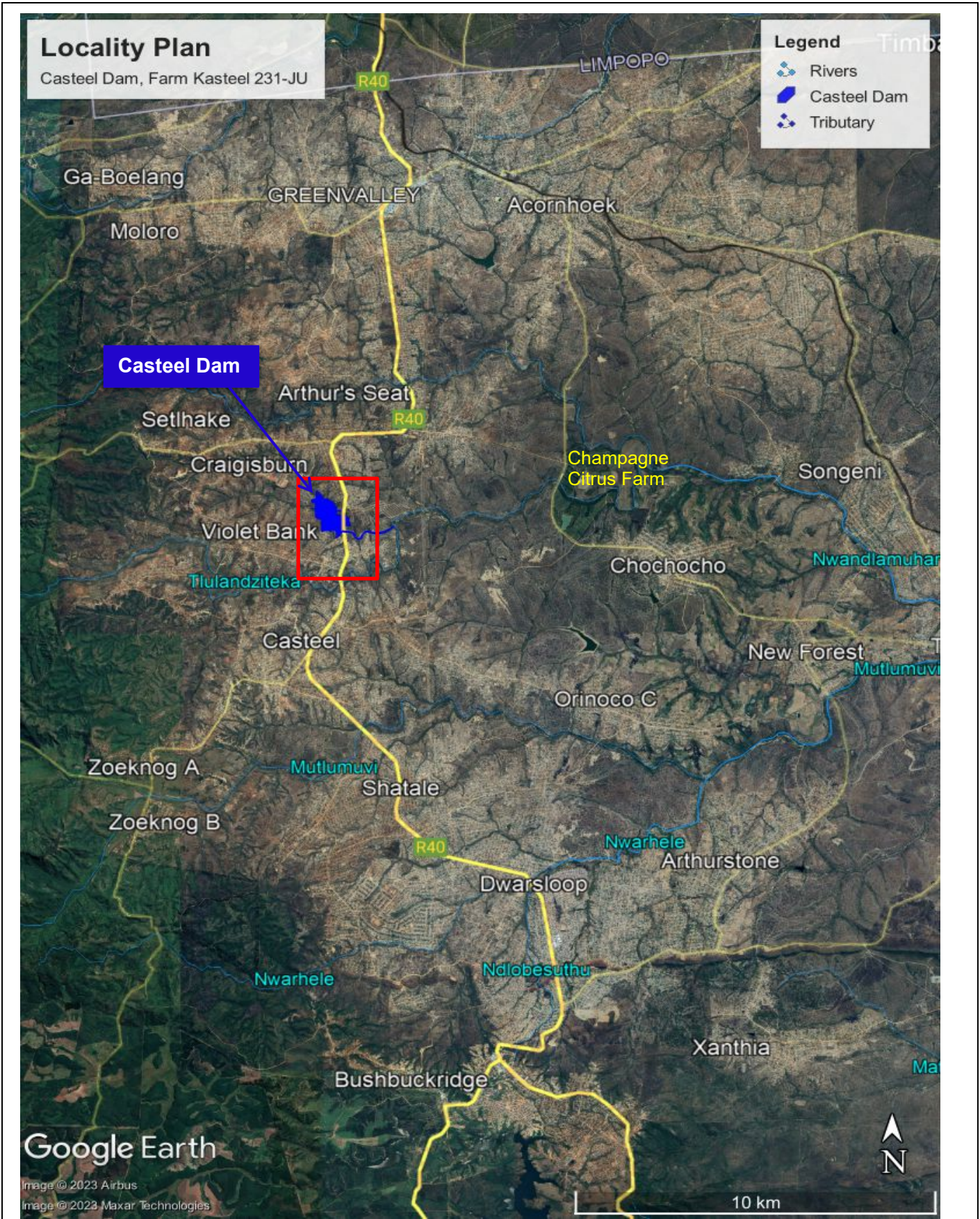


Figure 1-2 Locality Plan showing the location of Casteel Dam, 15km North of Bushbuckridge Town in the Casteel Region.



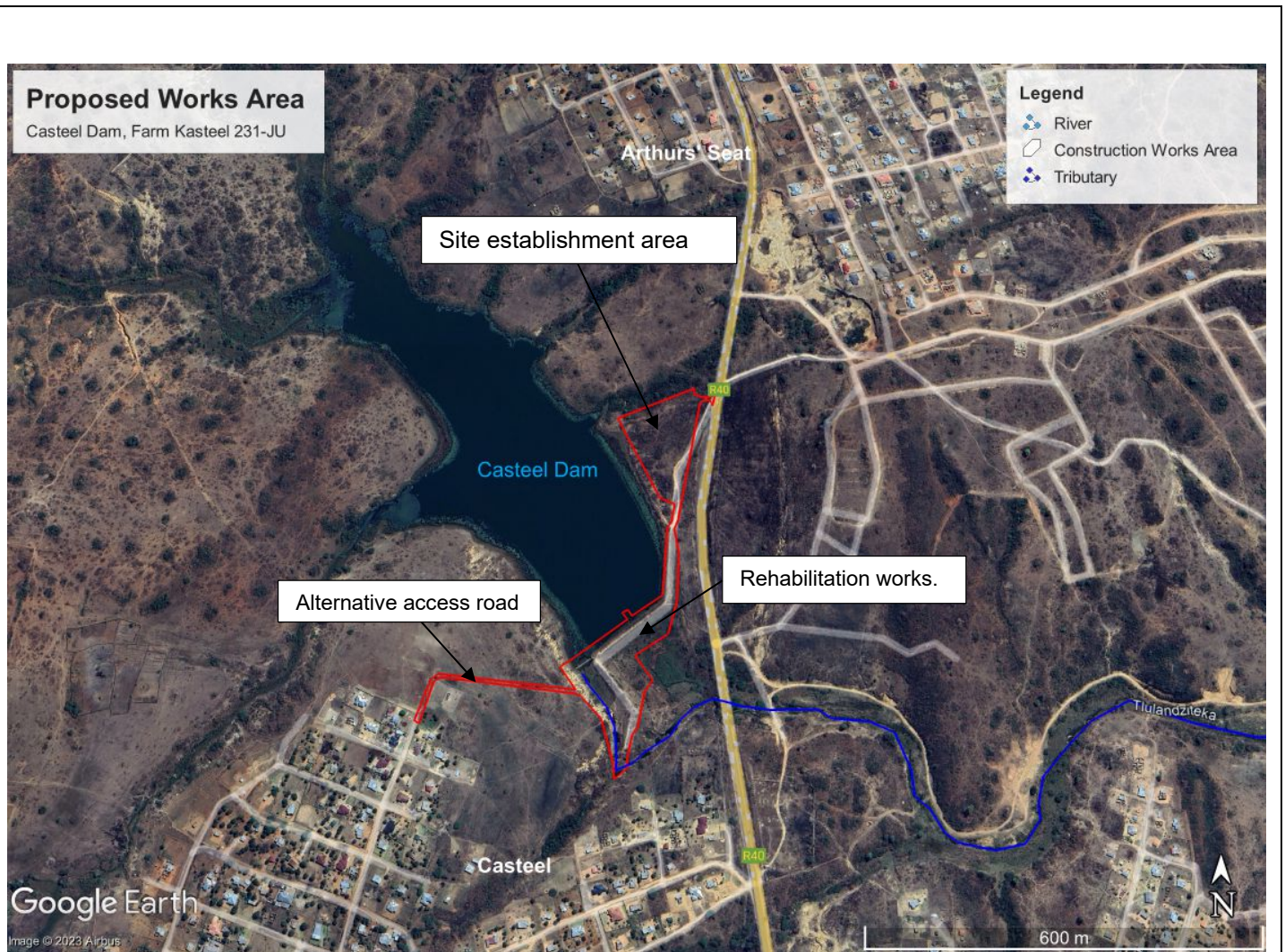


Figure 1-3 Aerial Image showing location of the proposed rehabilitation/construction works (red polygon) at Casteel Dam near Casteel settlement.

2. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1 Details of EAP who prepared the EMPr

Naledzi Environmental Consultants (Pty) Ltd has been appointed by DWS: SIAM to prepare the EMPr in terms of the NEMA EIA Regulations of 2014 (GNR. 326). A team of qualified, experienced, and professionally registered environmental scientists from Naledzi were assembled for this project and have compiled this document. Several specialist investigations were commissioned and have informed the EMPr.

Name of Practitioner: Naledzi Environmental Consultants Pty Ltd

Contact person: Marissa Botha / Prof. Khangwelo Desmond Musetsho

Telephone no.: +2784 226 5584 / +2783 410 1477

Fax no.: +2715 296 4021 **Email:** botham@naledzi.co.za / dmusetsho@naledzi.co.za

2.2 Expertise of the EAP who prepared the EMPr

Prof. Khanwelo Desmond Musetsho is a Senior Environmental Scientist and currently the Managing Director of Naledzi Environmental Consultants. He has over 19 years of experience in the field of Integrated Environmental Management, both on a project and management level. Mr Musetsho holds a Professional Bachelor of Environmental Management (Hons) Degree from the University of Venda, and a master's degree in environmental management from the University of Venda including a PhD in Environmental Management from the University of South Africa. He has extensive experience in Environmental Impact Assessments, development of management plans, development, and implementation of Environmental Management Programmes for construction, and facilitation of public processes and workshops. Desmond is a Certified Environmental Assessment Practitioner (ICB-EAPSA) and an Environmental Scientist (SAIEES) as well as a SACNASP Registered Natural Scientist.

Marissa Botha is a Professional Environmental Scientist with the South African Council for Natural Scientific Professions (SACNASP) (registration number 117526) with 19 years of working experience in the environmental management industry. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation in multiple projects such as electrical power lines, residential developments, road and water infrastructure development/upgrades, filling stations, education facilities, commercial plants, radar masts, borrow pit, prospecting right applications, mining right applications, atmospheric emission license variations including postponement applications from the minimum emission standards compliance timeframes for coal-fired power stations. Her areas of skill include project management, field investigations, environmental scoping and impact assessments, basic assessments, and environmental management programmes.

NEC has conducted Basic Assessment processes and Environmental Impact Assessment processes for multiple projects within the provinces of Gauteng, Mpumalanga, Northwest, Northern Cape, Western Cape, and Limpopo.

Please refer to the attached CVs under Appendix B2 of the Draft BAR.

2.3 Assumptions and Limitations

NEC has prepared this EMPr for the sole use of DWS: SIAM and the DWS Construction Management Team and any appointed Contractors for this project, following generally accepted consulting practices and for the intended purposes, as stated in the agreement under which this work was prepared. The report is also intended for review by the relevant competent authorities. This report may not be relied upon by any other party without the explicit written agreement of the DWS and NEC. No other warranty, expressed or implied, is made as to the professional advice included in this EMPr.

3 DETAILS OF APPLICANT (EA HOLDER)

National Department of Water and Sanitation (DWS)
Chief Directorate: Strategic Infrastructure Asset Management (SIAM)
Sedibeng Building, 185 Francis Baard Street, Pretoria, 0001
Private Bag X 313, Pretoria, 0001

Contact person 1: Mr John Kgopiso (Director)

Email: KgopisoJ@dws.gov.za

Contact person 2: Mr Rodney Siwelane (Project Manager)

Email: siwelanir@dwa.gov.za

4 PROPOSED ACTIVITY

Appendix 4 of GNR 326 requires that an EMPr must include:

- a) A detailed description of the aspects of the activity that are covered by the environmental management programme as identified by the project description.
- b) A map at an appropriate scale which superimposes the proposed activity, its structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.

4.1 Project Components

The project components are illustrated in **Figure 4-1** and will include:

- **28 500m² Rehabilitation works to the dam embankment, spillway, outlet works and intake tower. i.e.,**
 - Raise the non-overspill crest (NoC) by 2-meters by constructing a 2.15-meter-high concrete parapet wall and raising the existing concrete wall on the right flank to the new NoC level.
 - Stabilising the downstream slope of the dam embankment by flattening the slope by adding earth fill and widening the embankment crest from 4-5 meters by adding layered material on the downstream side. A gravel layer will be added to the downstream slope for protection.
 - The spillway channel will be sloped, lined using Amoflex and a new training wall will be constructed. The existing wall foundation will be demolished.
 - Construct an inclined chimney drain and a toe drain to control dam wall seepage. Two 160mm perforated collector pipes will discharge collected seepage and a V-notch will be used to monitor seepage. Existing 3 x 250mm pipes will be replaced with up to 1000mm diameter pipes.
 - Construction of a temporary coffer dam to create safe working space around the outlet works. Repair the outlet works and expand the concrete intake tower to a 5 x 5-meter dimension and add a concrete intake tower bridge.
 - Construction of a paved walkway on the dam crest.
- **2 200m² Erosion protection works at the donga below the dam spillway channel.** This will include construction of rubble masonry to line the river return channel and building a concrete barrier along both sides of the Donga from the spillway to the river connection point. This will prevent animals and humans from falling into the Donga.

- **70 m² Pedestrian Bridge over the spillway** to create a new walkway over the dam embankment (i.e., The proposed concrete barrier will close the current walkway).
- **0.9-Hectare temporary site establishment area** will be created northeast of the dam to serve as a construction laydown area.
- **The existing R40/Casteel Dam access road will be realigned and upgraded** from the R40 to the toe of dam, with imported material. The road will be 6-meters wide and 250-meters in length.
- **An alternative access road will be constructed from Casteel village to the spillway section** of the dam. The access road will be 4-5 meters wide and 300-350 meters in length.

A large extended pipe is currently releasing water downstream to the irrigation scheme users and communities. During the outlet works repair, one out the three existing outlet pipes will always be available to release water to downstream water users. Once the rehabilitation works are done, DWS will stop the temporary measure and the outlet works would continue to release water as usual.

All reeds and vegetation on the spillway approach channel and upstream slope along the dam embankment will be removed as part of the rehabilitation works. It will promote the free flow of water, prevent spillway blockages, and allow for the placement of slope protection material.

Construction Material:

Infill material will be sourced from a licensed commercial quarry/crusher (probably near Agin Court Region). The exact location of the quarry has not been finalised yet. The construction material will be transported to site using 6m³ trucks. The importation of filling material will take place within the first 3 months of the construction period.

Material Stockpile Areas:

Material stockpiles must be confined to the site establishment area. At the spillway section, the material stockpile (if required) should be placed 100 meters west of the spillway along the alternative access road. The area allocated for this is less than 2000m². Hessian will be placed along the perimeter to prevent stormwater carrying soil into the dam and or other watercourses.

Access Roads to be used:

The construction vehicle trip generation will likely include tipper trucks, importing material from the quarry to the dam wall and public transportation transporting workers to and from the site. The construction traffic will use two access roads i.e.

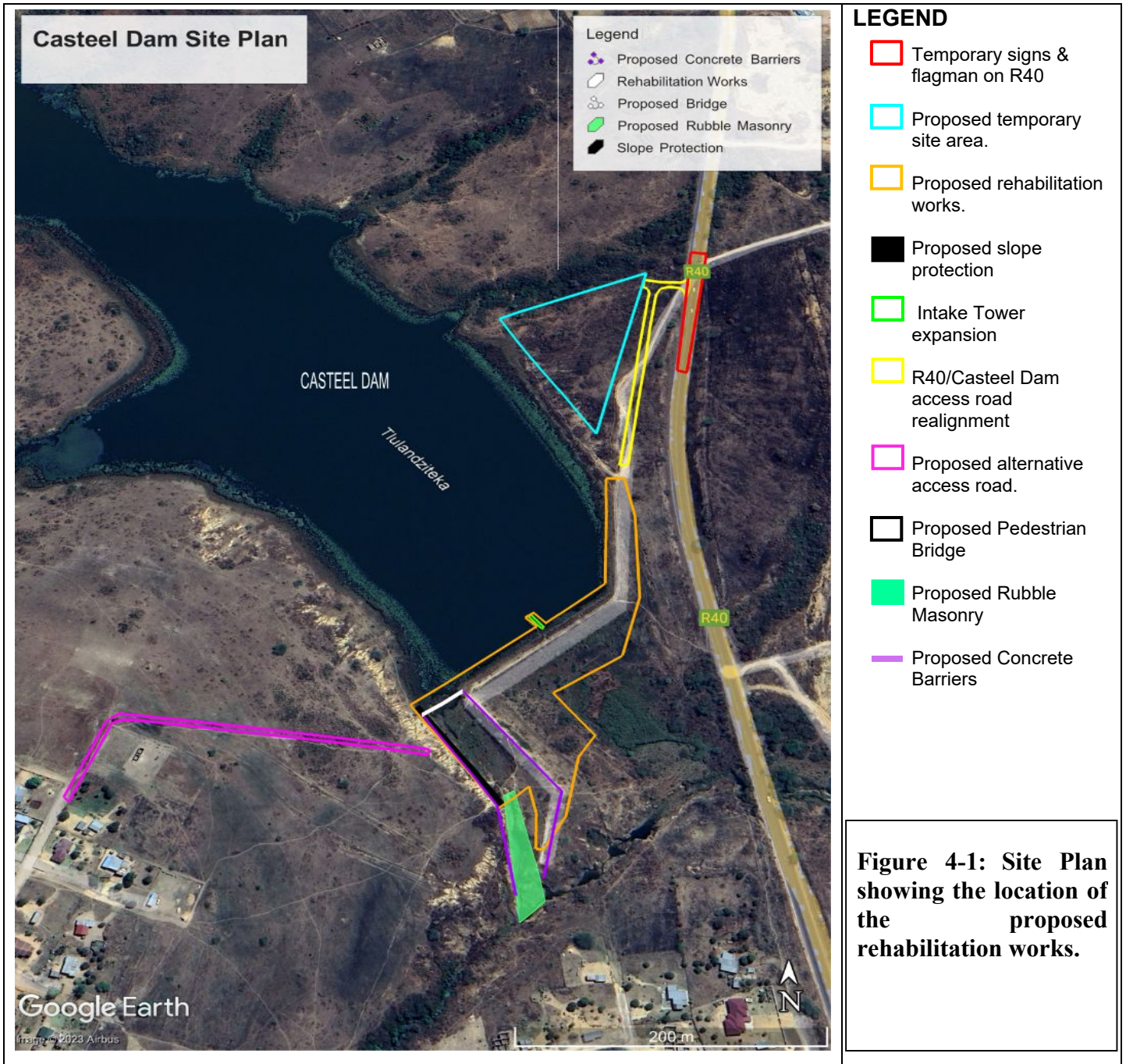
- The R40/ existing Casteel Dam access intersection.
- R40 / D3950 intersection (Wales Road) to access the spillway section.

The existing R40/Casteel Dam access road will be slightly realigned to allow for better manoeuvrability to and from the R40. The construction trucks (importing borrow material) could approach the Casteel Dam from either North or South. It is however most likely to approach the Casteel Dam from the South.

The R40/D3950 intersection (Wales Road) will be used to access the spillway section on the right (western) flank of the dam. A short 300-350-meter gravel access road will be created from the village road to the dam.

Waste Management:

- Solid waste will be collected by truck of the appointed Contractor and removed to Casteel Waste Disposal Site.
- Mobile chemical toilets for construction staff will be provided at the temporary site establishment area (i.e., construction laydown area). The chemical toilets will be provided and serviced by an external contractor i.e., Talisman, Coastal Hire etc.



4.2 Construction Workforce and Labour

The construction workforce will comprise a minimum of 150 and maximum of 200 workers dropped off onsite by public transportation daily.

Skilled labour will be supplied by the DWS Construction Management team and unskilled labour will be sourced from the local communities. The local labour will be identified/selected by the project steering committee (PSC) in consultation with the political principals, traditional councils, local authority and ‘a stakeholder committee’ in its entirety.

4.3 Project Phases and Schedule

There are only two phases relevant to the proposed project (**Table 1**), namely:

- Planning /Procurement Phase (secure all necessary permits, agreements, procurement)
- Construction Phase (during which rehabilitation works will take place)
- Rehabilitation of post construction impacts.

Decommissioning of Casteel Dam is not foreseen soon.

Table 1: Project Phases and Schedule

No.	Project Phase	Time frame	Period
-	BA process	18 months	Done by December 2023
1	Procurement/Planning Phase	6 months	January to June 2024
2	Construction period	24 months	July 2024 to June 2026
Total		48 months	

4.4 Validity Period of Environmental Authorisation

5 YEARS. This period will cover the planning/procurement and construction phase of the proposed Casteel DSRP.

4.5 Composite Map

The footprint area of the proposed Casteel DSRP comprises the following environmental sensitivities:

- Natural Channelled Valley Bottom Wetland
- Eroded drainage line North of the site establishment area and tributary of the Tlulandziteka River.
- **Nationally protected tree species.** *Sclerocarya birrea* (Marula) which have been recorded in a moderately high density onsite. There are approximately 23 individual trees within the proposed works and site establishment area.
- **Two provincially protected plant species** i.e., *Aloe barbertoniae* (succulent occurring in large numbers) and *Gladiolus cf. crassifolius* (geophyte rarely encountered).
 - The *Aloe barbertoniae* has been recorded in 18 locations onsite which overlap with the site establishment area and rehabilitation works area. There is a total of 141 *Aloe barbertoniae* plants onsite.
 - Only one (1) *Gladiolus cf. crassifolius* plant was recorded in the proposed site establishment area.

Only 0.1 hectares of the wetland will be impacted by the rehabilitation works and can easily be restored by rehabilitating the disturbed area and controlling the spread of alien invasive vegetation. A buffer zone of at least 50 m from the edge of the wetland is recommended for all activities that are not needed within the wetland. A 10-meter buffer zone must be upheld from the drainage line North of the site establishment area.

The Marula Trees will be removed under Permit and all specimens of *Aloe barbertoniae* within the project footprint will be dug up with their roots intact and transplanted into either adjacent habitat or used in landscaping/re-vegetation around the construction site. The protected plant and tree species have been plotted using a Garmin GPS device and have been superimposed on Google Earth Satellite imagery. Refer to **Figure 4-3 and 4-4** for the Composite map (i.e., Sensitivity Map) which superimposes the environmental sensitivities (i.e., wetlands, protected plant species) related to the project site.

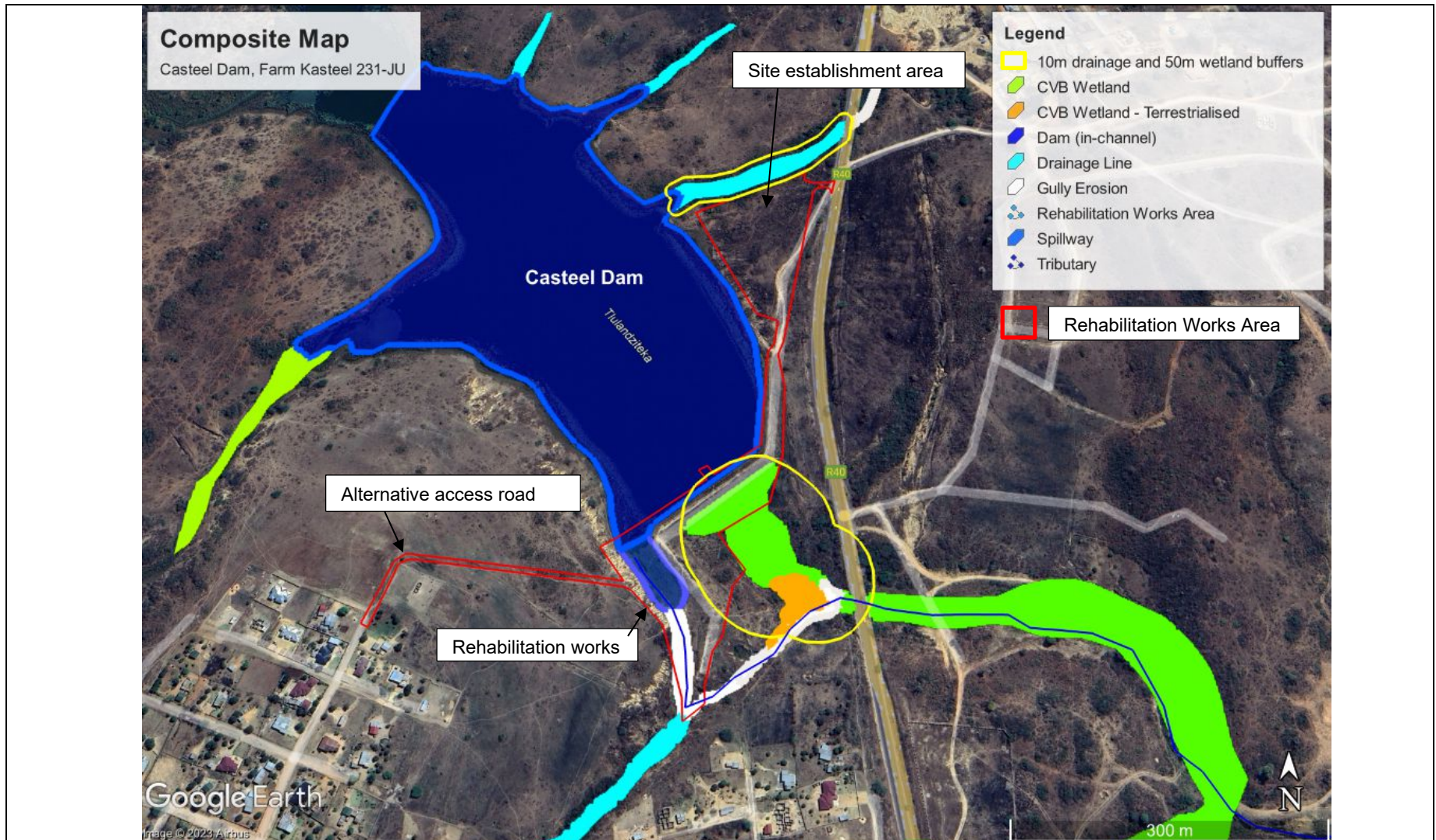


Figure 4-3: Composite Map illustrating the location of the rehabilitation works area (red polygon) in relation to the Channeled Valley Bottom Wetland, Drainage lines, Casteel Dam and the buffer zones (yellow polygon) to be upheld to such features.

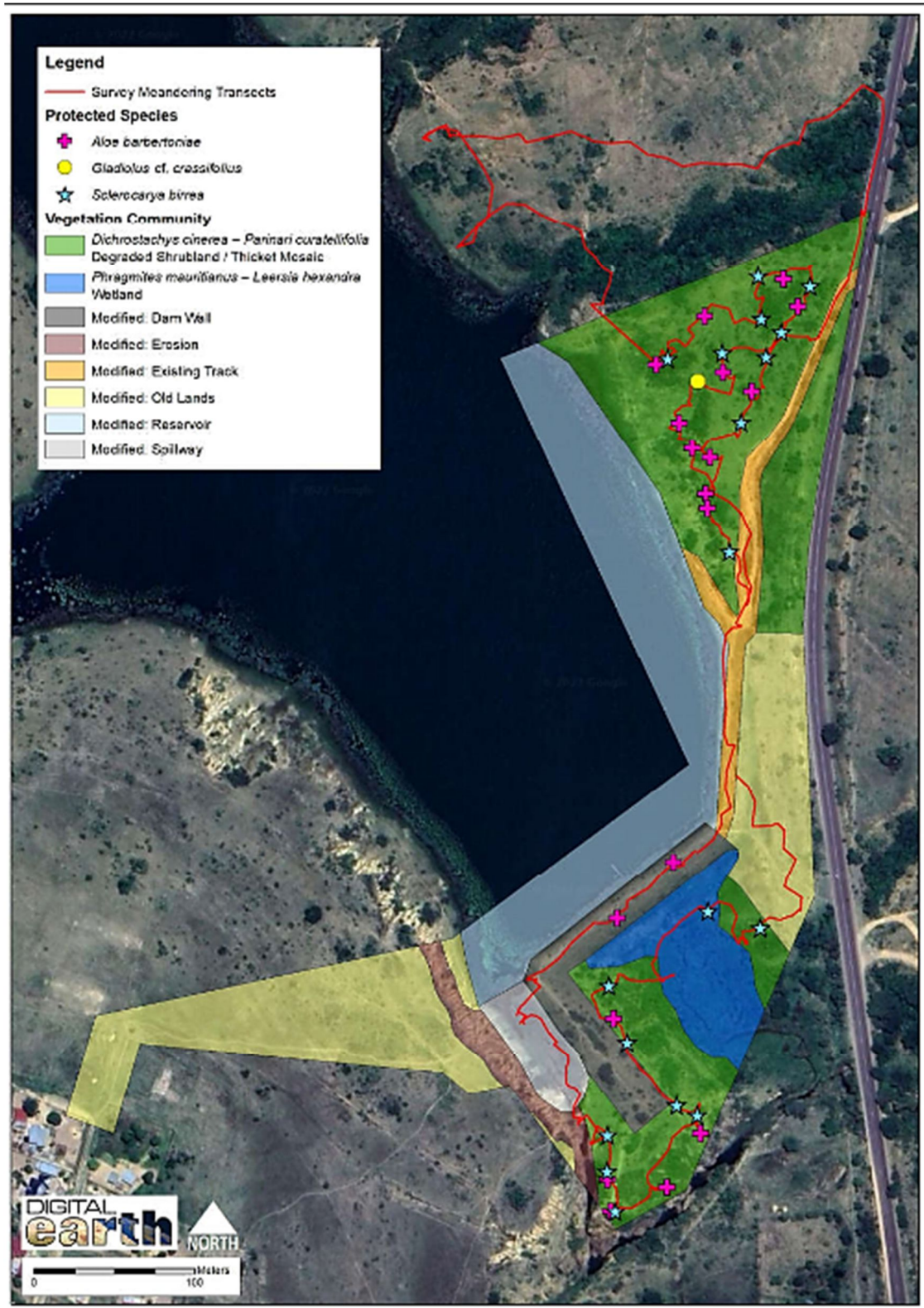


Figure 4-4 : Spatial presentation of vegetation communities and location of protected plant species within the study area. Image courtesy of Digital Earth, 2022.

5 LEGISLATIVE REQUIREMENTS

5.1 Applicable Legislation

Table 2 outlines the range of other laws which regulate the impact on the environment which the DWS, its Construction Management Directorate and any of its appointed Contractor/s need to comply with.

Table 2: Summary of applicable Legislation

LEGISLATION			
Legislation	Section	Related to	Authority
The Constitution of South Africa (Act 108 1996)	Section 24	Environmental Rights	All spheres of government
National Environmental Management Act (107 of 1998) as amended in 2004 and 2008 and 2014	Chapter 5	Integrated Environmental Management	DFFE, MDARDLEA
	Section 28	The developer has a general duty to care for the Section 28 environment and to institute such measures as may be needed to demonstrate such care.	
	Chapter 7	Compliance enforcement and Protection	
EIA Regulations of 2014 Government Notice R326	Regulation 19 (1)(a)	BAR must contain a Draft EMPr	DFFE, MDARDLEA
	Appendix 4	Sets content of EMPr	
National Environmental Management: Waste Act (Act 59 of 2008) and its amendments	Chapter 4	The developer has a general duty to avoid the generating waste and if not avoided minimise and manage such accordingly	DFFE, MDARDLEA
	Section 16	It is the responsibility of the person generating the waste to ensure that the waste is treated and disposed of in an environmentally sound manner	
	Section 27	Provision of containers for waste management	
National Environmental Management: Air Quality Act (39 of 2004)	Section 32	Control of dust	DFFE, Ehlanzeni District Municipality
	Section 34	Control of noise	
	Section 35	Control of odour	
Conservation of Agricultural Resources Act (Act 43 of 1983)	Overall	Provides for control over the utilisation of the natural agricultural resources to promote the conservation of soil , water sources and vegetation and the combating of weeds and invader plants, and for matters connected therewith.	Department of Agriculture
	Section 6	Implementation of control measures for alien and invasive plant species	
	Section 19	Prevention of littering by employees and sub-contractors during construction and the maintenance phases of the proposed project.	
National Water Act (36 of 1998)	Chapter 3	Provides for the protection of water resources wetlands, riparian zones etc.	DWS, IUCMA (Catchment Management Agency)
	Chapter 3, Section 19	Prevention and remedying the effects of pollution	

	Chapter 3, Section 20	Control of emergency incidents	
	Chapter 12, Section 123	Safety of Dams – Regulations regarding dam safety. Carry out dam safety evaluations on the dam.	
	Chapter 11, Section 110	DWS is exempted from applying for a water use license since the project involves the refurbishment of an existing government waterworks, approved by the Minister of Water and Sanitation in accordance with Section 110.	
National Heritage Resources Act (25 of 1999) and regulations	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.	SAHRA
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.	
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorising body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account before making a decision on the HIA.	
National Environmental Management: Biodiversity Act (10 of 2004)	Overall	Provides for management and conservation of South Africa's biodiversity within the framework of the protection of species and ecosystems that warrant national	DFFE, MDARDLEA

		protection and the sustainable use of indigenous biological resources. Most recent legislation pertaining to alien invasive plant species.	
	Gazette No 1003, 18 September 2020	List of Alien Invasive Species	
	Gazette No 1020, 25 September 2020	Alien and Invasive Species Regulations Category 1a species: It calls for combat and eradication of alien invasive plant species in accordance with an Invasive Species Management Programme. Category 1b species: It calls for removal and/or control of alien invasive plant species. Category 2 species: No land user shall allow species to occur within 30m of a 1:50 year floodline or a river, stream, spring, natural channel, dam, or wetland. Category 3 species: Prohibited from occurring within proximity of a watercourse.	
Mpumalanga Nature Conservation Act 10 of 1998	Chapter 6, Section 69, 70-75	Provincially protected plants and specifically protected plants.	MDARDLEA
National Road Traffic Act (No 93 of 1996)	South African Road Traffic Signs Manual Vol 2, Chapter 13	Road safety, temporarily construction signage	SANRAL
National Dust Control Regulations (GNR. 827/ 2013)	Section 3	Set an acceptable standard for dust fall rate	DFFE, Ehlanzeni District
Occupational Health and Safety Act (Act 85 of 1993)		Deals with the prevention of occupational accidents and injuries	Department of Labour
Hazardous Substances Act (Act 15 of 1973)		Provides for the definition, classification, use, operation, modification, disposal or dumping of a hazardous substance.	Department of Health
National Forest Act (84 of 1998)	GNR. 1935 of 2022 issued under Section 12	List of National Protected Tree Species	DFFE: Forestry Management and Regulation
	Section 15 (1)	No person may cut, fell, and remove any listed protected tree species without a necessary permit from the Department of Agriculture Forestry and Fisheries.	
Fire Services Act (Act 99 of 1956)	Overall	Provides for the promotion and support of fire safety, the fire suppression service, and circumstances to achieve fire safety. Regulates local authorities in terms of fire services provision in incidents of fire.	Bushbuckridge Local – and Ehlanzeni District Municipalities

5.2 Applicable Permits/Approval to be obtained prior Construction roll-out

5.2.1 Consent from SANRAL

The Casteel Dam access intersection with the R40 will be used during the construction phase to import construction material and delivery of construction staff. The slow-moving construction vehicles pose a safety risk. DWS must obtain approval from SANRAL, prior to construction, to implement the temporary construction signage along the R40 and realignment of the dam access intersection with the R40.

Consent is to be requested for the following safety precautions (**Figure 5-1**) along the R40 for the duration of the construction period at the R40/Casteel Dam access intersection located north of the dam:

- Temporary flagmen; and
- Temporary construction signage in accordance with the SA Road Traffic Signs Manual.
- Reduce speed to 60km/hr at the locality of the access.

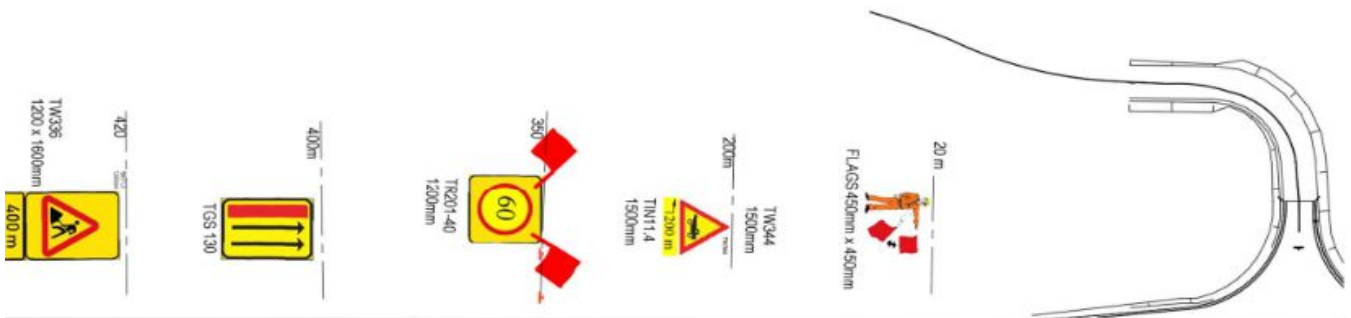


Figure 5-1: Typical construction signs to be implemented on both sides of the R40/Casteel Dam access intersection.

5.2.2 Heritage and Paleontological Record of Decision

A record of decision is required from the South African Heritage Resource Agency. The National Heritage Resources Act (Act 25 of 1999) under Section 38 requires that any development that will change the character of the site (exceeding 5000m² in extent) including the rezoning of a site exceeding 10 000m² in extent must notify the heritage resources agency and provide details regarding the location, nature extent of the project. Section 35(4) of the Act also protects paleontological sites.

Based on the Phase 1 Archaeological Impact Assessment (AIA) Study undertaken for Casteel DSRP there are no heritage features onsite. SAHRA was notified of the project on 17 October 2022 (Case ID 19843) and the AIA Study results have been uploaded to the SAHRIS online application system for approval. If any resources are encountered during bulk earthworks, a heritage permit may be required. The EMPR does include protocols for finds that should be implemented by the DWS if such is encountered onsite during the construction phase.

The DWS Contractor / an appointed Community Liaison Officer must also engage the traditional council during the procurement/planning phase to determine if any community rituals are performed at the dam. Opportunity for such rituals can be accommodated prior to commencement of construction activities.

5.2.3 Permits for Removal of Nationally Protected Trees

Protected Tree Removal Permits must be obtained from the Department of Forestry, Fisheries and Environment (DFFE) Forestry Regulation and Support for the destruction of numerous nationally protected tree species i.e., *Sclerocarya birrea* (Marula), recorded onsite.

The permit application should be made in terms of Section 15 (1) under the National Forest Act (Act No 84 of 1998) 3 months prior to construction commencement since these permits are valid for 12 – 18months.

Figure 5-2 shows an image of a Marula tree for identification purposes. The spatial representation of the location of protected plant species are illustrated in **Figure 4-4**. The GPS co-ordinates of the location of the recorded Marula trees are provided under **Annexure A** of this EMPR.

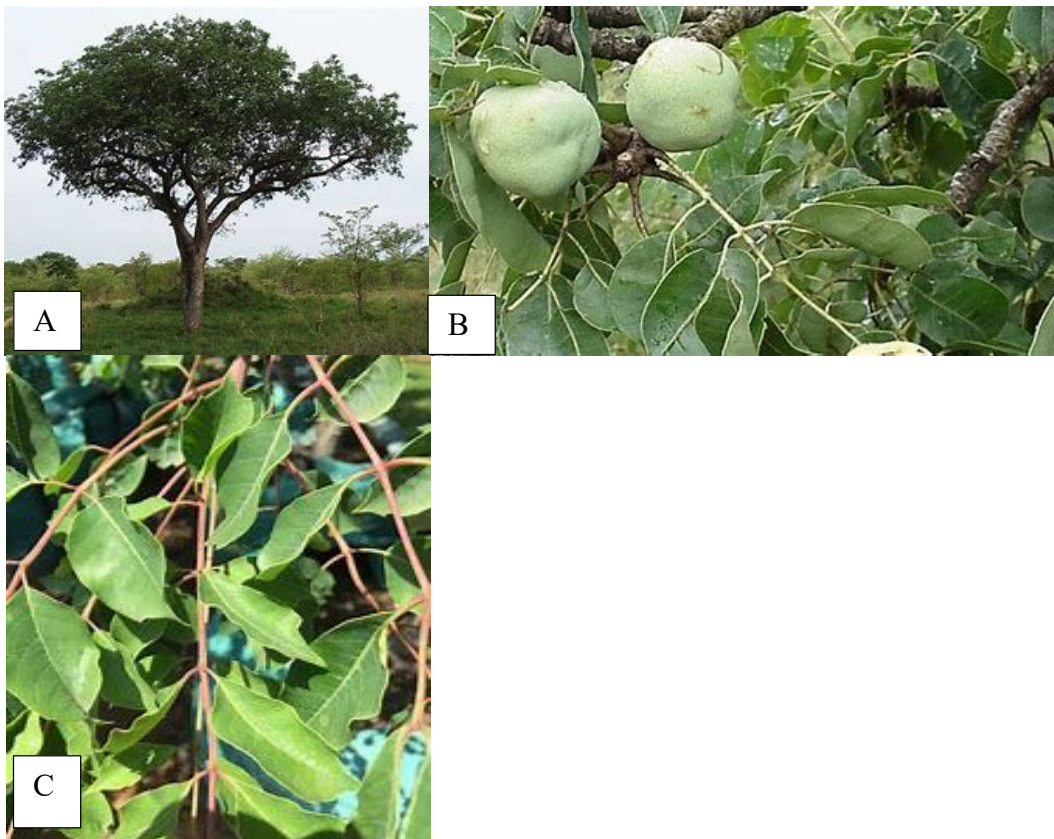


Figure 5-2: A) Marula Tree, B) Fruits of a Marula tree, C) Marula tree leaves.

5.2.4 Transplant of Provincially Protected Plant Species

Two plant species protected under the Mpumalanga Nature Conservation Act (MNCA) have been recorded within the proposed works area i.e., *Aloe barbertoniae* and *Gladiolus cf. crassifolius* (**Figure 5-3**).

The spatial representation of the location of protected plant species within the study area is illustrated in **Figure 4-4**. The GPS co-ordinates of the location of the recorded protected plant species are provided under **Annexure A** of this EMPR.

All specimens of *Aloe barbertoniae* within the rehabilitation works footprint areas will need to be carefully dug-up with their roots intact and transplanted into either adjacent habitat or used in landscaping/re-vegetation around the construction site. Since the species will be transplanted no destruction permits are required from MDARDLEA.



Figure 5-3: A) Aloe barbertoniae (to be transplanted into adjacent habitat); B) Gladiolus cf. crassifolius.

6 ENVIRONMENTAL MANAGEMENT PROGRAMME

6.1 Objective of the EMPr

The objective of this EMPr is:

- To identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal insignificant levels.
- Detail actions required to assist in alleviating the environmental impact derived from the dam rehabilitation works.
- Where applicable, address concerns and complaints of I&APs concerning the construction activities.
- Institute a method of monitoring and auditing environmental management procedures during the identified construction phase.
- Ensure that safety recommendations are implemented and fulfilled.

Table 3: Objective of EMPr
Avoiding impacts by not performing certain actions
Minimising impacts by limiting aspects of an action
Rectifying impacts through construction, restoration, etc of the affected environment
Compensating for impacts by providing substitute resources or environments
Minimising impacts by optimising processes , structural elements, and other design features
Provide ongoing monitoring and management of environmental impacts of a project and documenting of any digressions /good performances.

6.2 DWS Chief Directorate: Construction Management (the Contractor)

According to the DWS: SIAM the proposal is for the DWS Chief Directorate: Construction Management (the Contractor) to undertake the rehabilitation works.

An environmental briefing must be conducted between the two directorates to alert the ‘DWS Construction Management’ of the environmental management requirements for the project.

The Construction Management directorate will be required to develop construction method statements on how it plans to implement the construction works in compliance with the EMPr and EA conditions. These method statements must be approved by the DWS Engineer and Project Manager and supplied to the Environmental Site Officer (DWS internal/ appointment) who would be responsible for the daily implementation of the EMPr and external Environmental Control Officer (ECO) responsible to monitor/audit DWS’s compliance with the EMPr.

6.3 Monitoring and Auditing Requirements of the EMPr

Regulation 34 of the NEMA EIA Regulations of 2014 requires that an environmental authorisation and EMPr is audited, and an Environmental Audit Report be submitted to the DFFE. An Environmental Audit Report must be prepared in accordance with Appendix 7 of the same regulations. Audit Reports must be conducted and submitted to DFFE at intervals as indicated in the environmental authorisation. Mitigation measures stipulated in the EMPr must be implemented.

- The DWS Chief Directorate: Construction Management Team/appointed Contractor must appoint a qualified Environmental Site Officer (ESO) to:
 - Conduct daily site inspections and monitoring to ensure daily implementation of the EMPr conditions and to provide corrective actions where required.
- A qualified external Environmental Control Officer must be appointed by the DWS to:
 - Conduct monthly site audits, if required by the EA during the construction phase.
 - Compile monthly audit reports and submit to DWS and the DFFE.
- During the operation phase of Casteel Dam, DWS must conduct Routine Dam Safety Inspections as required in terms of the Dam Safety Regulations. The DWS should monitor the following at Casteel Dam
 - Routine inspection of the dam wall for the presence of termites is crucial.
 - Inspect the dam wall on regular basis to detect and address early stages of erosion.
 - The dam wall should be free from any brush and tree growth that have a negative impact on the integrity of the structure.
 - Control aquatic vegetation build up in the dam wall.
 - Downstream River Monitoring for possible seepage contamination in outlet water by pesticides and herbicides applied in termite and weed management on the dam wall structure or upstream.

6.4 Amendment to the EMPr

The EMPr is a working document; the objectives and management action tables are to be reviewed and possibly modified whenever changes, such as planned activity change, modification to environmental objectives and targets, or additional unforeseen environmental impacts are identified and when relevant legal or other requirements are changed.

Regulation 35 of the NEMA EIA Regulations of 2014 (GNR 326) states that any amendments to the EMPr because of an audit (done by ECO) or conditional requirements of the EA must be communicated in writing to the DFFE within the timeframes as stipulated in the EA. DFFE must consider the environmental audit report and amended EMPr and approve such amended EMPr if it is satisfied that it sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity and that it has been subjected to an appropriate public participation process.

Regulation 36 of the NEMA EIA Regulations specifies where other amendments are required to the impact management actions of an EMPr, such amendments may immediately be affected by the holder and reflected in the next environmental audit report submitted as contemplated in the environmental authorisation and regulation 34. Where an amendment to the impact management outcomes of an EMPr is required before an audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the holder of an environmental authorisation.

7 ENVIRONMENTAL MANAGEMENT, ROLES, AND RESPONSIBILITIES

Appendix 4 of GN R 326 requires that an environmental management programme must include an indication of the persons who will be responsible for the implementation of the impact management actions. **Figure 7-1** provides a basic reporting and communication structure for the implementation of the EMPr. The roles of each of the parties are tailed in the sections below under Section 7.1.

To effectively implement the EMPr, it is necessary to identify and define the responsibilities and authority of the various persons and organisations that will be involved in the project. The EMPr will be an item of the monthly project meetings to provide input with respect to compliance with the EMPr.

Whilst compiling the EMPr it was understood that the DWS Directorate Construction Management will execute the proposed rehabilitation works at Casteel Dam. If the department decides to follow a procurement process and appoint an external Contractor, such Contractor will be responsible to fill the roles and responsibilities allocated to the DWS Chief Directorate Construction Management and to appoint an Environmental Site Officer (ESO).

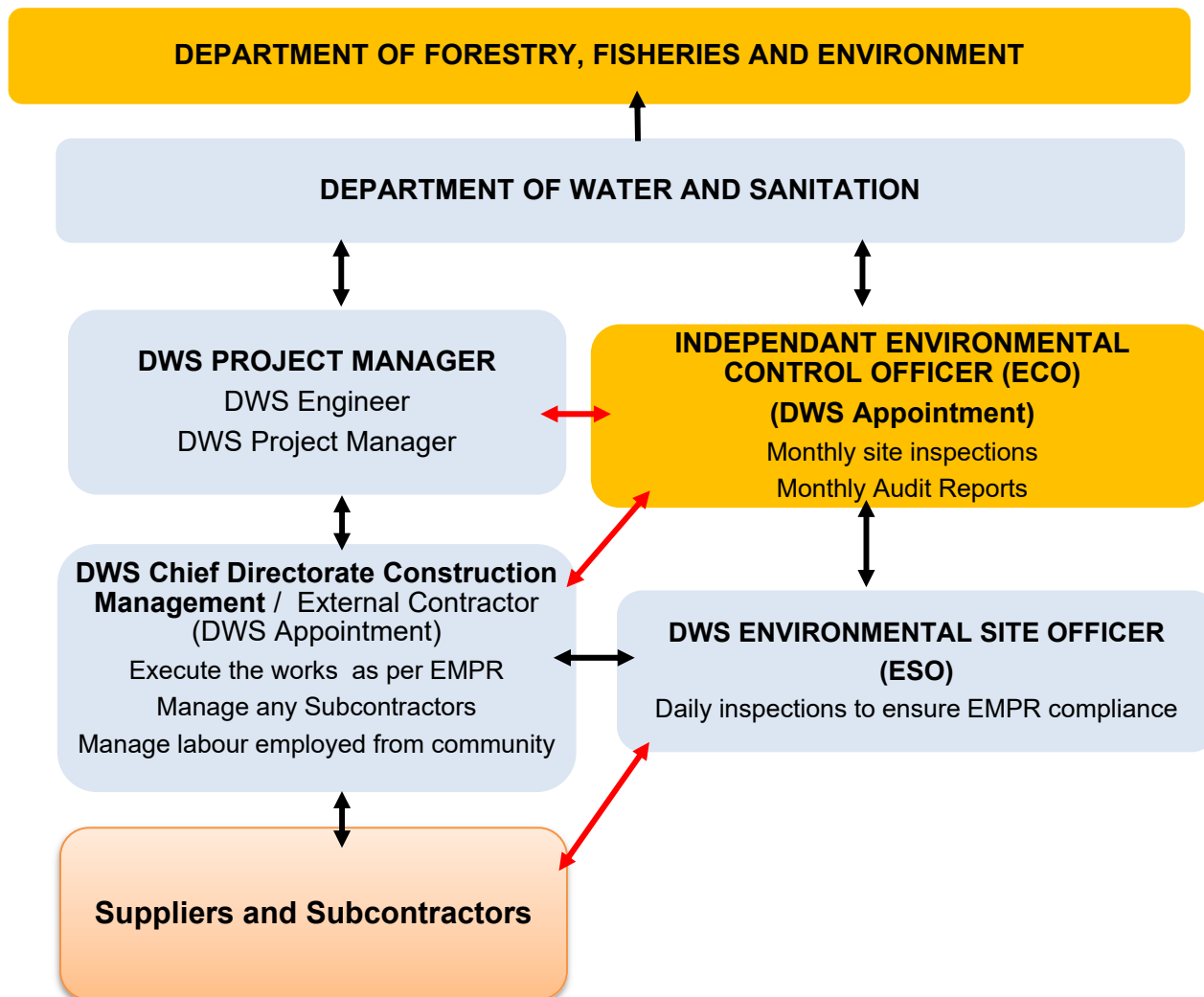
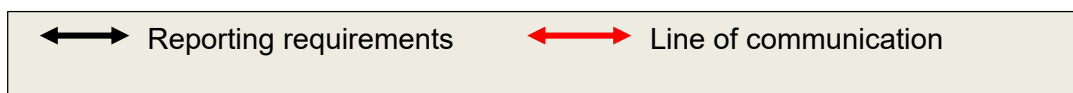


Figure 7-1: Roles, responsibilities, organizational and reporting



If the DWS Directorate Construction Management executes the work. The DWS will have ultimate responsibility of the proposed Casteel DSRP and execution therefore in compliance with the EMPR. The DWS Directorate Construction Management will be responsible for the practical implementation of the EMPR and would need to allocate an internal DWS Environmental Site Officer (ESO) to monitor the daily implementation/compliance of/with the EMPR. The DWS will also be responsible to appoint an independent Environmental Control Officer (ECO) responsible for monthly site inspections and preparation of Monthly Audit Reports on overall compliance with the EMPR. The ESO will communicate daily monitoring results to the ECO during the monthly ECO inspections.

If a procurement process is followed and external Contractor is appointed. The appointed Contractor will execute the rehabilitation works and will be responsible for the practical implementation of the EMPR. The Contractor will also need to appoint an Environmental Site Officer (ESO) to monitor daily compliance with the EMPR. The DWS will also be responsible to appoint an independent ECO responsible for monthly site inspections and auditing compliance with the EMPR.

7.1 DWS Project Manager

The DWS Project Manager will **have ultimate responsibility to ensure that the DWS Construction Management Team (or appointed Contractor) and construction workforce comply with the conditions and management measures set out in the EMPR.**

The DWS Project Manager will be responsible to ensure:

- That the DWS Construction Management Team (or appointed Contractor) can comply with all the statutory requirements which must be met to plan and construct the rehabilitation works, which includes the adherence and implementation of the EMPR.
- Generate a Photographic Report documenting the status quo of the project site prior to the construction phase commencing. This Photographic Report will be used to compare the pre and post construction condition of the site.
- Sign-off / approve the construction method statements provided the DWS Construction Management Directorate / Team (or appointed Contractor) before construction commences.
- Upon completion of the construction phase the DWS Engineer and Project Manager must conduct a site inspection to sign off the completed rehabilitation works and that it is satisfied with rehabilitation disturbed construction areas compared to the pre-construction Photographic Report.
- Assess the DWS Construction Management Team overall performance with the EMPR based on the ECO Audit Reports issued monthly.
- Facilitate stakeholder meetings with the Project Stakeholder Committee (PSC) about construction activities and sourcing of labour.
- Appoint a Community Liaison Officer (CLO) to maintain a register of complaints and queries by community members at a site office to be established at the Thusong Centre. The CLO will also be responsible to follow up and ensure that community issues are addressed swiftly by the DWS Project Manager.

7.2 DWS Directorate Construction Management (the Contractor)

The DWS Construction Management Directorate **must comply with the conditions and management measures set out in the EMPR.**

The DWS Construction Management Directorate / the appointed Contractor will be required to:

- Supply construction method statements for all activities to the DWS Engineer and ESO for the duration of the construction phase.
- Be familiar with the recommendations and mitigation measures contained in the Casteel DSRP EMPR and brief all construction workforce, subcontractors, and suppliers of the environmental specifications to be observed.
- Pay for any damages/compensation required due to non-compliance with the environmental management measures and or conditions contained in the EMPr.

7.3 Independent Environmental Control Officer (ECO)

The ECO is an independent person appointed by the DWS.

The ECO will assume responsibility to **monitor compliance with the EMPR** and to give advice on implementing its recommendations and management measures.

The ECO will:

- Be suitably qualified in the environmental sciences and management and have adequate construction site experience of monitoring and auditing the implementation of an EMPr.
- Report to the DWS (incl. the DWS Construction Management Directorate/appointed Contractor, ESO) and DFFE.
- Be familiar with the recommendations and mitigation measures contained in the Casteel DSRP EMPR.
- Conduct once-off training on the EMPr with the DWS Construction Team including environmental awareness training.
- Monitor the implementation of the EMPR during the construction phase.
- Monitor that the DWS Construction Management Directorate/appointed Contractor, subcontractors and construction workforce comply with the EMPR during the construction phase the project.
- Conduct monthly site audits for the duration of the construction phase.
- Compile monthly audit reports stating the overall compliance with the EMPR and highlighting any non-compliance issues with the EMPR conditions. Such reports are submitted to the DWS Project Manager and communicated to the DWS Construction Team.
- Communicate any environmental issues or non-compliance at the site and recommend corrective action through the monthly audit reports. It is advisable that the submission of monthly audit reports is followed up with a meeting with the DWS Project Manager and Construction Management Team to discuss the audit outcomes.
- Recommend any amendments required to the EMPR as necessary.

7.4 Environmental Site Officer

The ESO is usually an internal DWS official or appointed by the Contractor for the construction period.

The ESO will assume responsibility to ensure the **practical implementation of the management measures and conditions contained in the EMPr daily**.

The ESO will:

- Require environmental management experience in the field and experience on construction projects.
- Be familiar with the recommendations and mitigation measures contained in the Casteel DSRP EMPR.
- Review and approve construction method statements to be submitted by the DWS Construction Management Team / appointed Contractor.
- Undertake daily site inspections and monitor site activities for compliance with the EMPR conditions. Notify the DWS Construction Management Team/appointed Contractor and ECO of any non-compliance issues.
- Record of emergency incidents and recorded action taken for remediation.
- Monitor the DWS Construction Management Team / appointed Contractor overall performance against the EMPR.

- Monitor environmental aspects and advise the DWS Construction Management Team/appointed Contractor of corrective actions required.
- Discuss the content of the EMPR with the DWS Construction Team/the appointed Contractor including construction workforce.
- Establish routine management, liaison and reporting systems and prepare management reports to assist the Contractor.
- Maintain all records with the EMPR requirements onsite. Such records must be available to the ECO during monthly audit inspections.

8 ENVIRONMENTAL AWARENESS TRAINING

The DWS Chief Directorate of Construction Management (or the appointed Contractor) must be familiar with the requirements of the EMPR and must have the knowledge and financial capacity to implement the proposed impact management actions. The DWS Contractor must appoint an Environmental Site Officer to ensure the practical implementation of the EMPR and to monitor the implementation daily.

The ECO must provide environmental awareness training to the DWS Contractor and construction staff to reduce exposure to liability for environmental degradation caused by errant employees.

The training should be done verbally and would be a once-off-event; the DWS Contractor and ESO should however make provision for weekly training / Toolbox talks. Environmental Awareness must be fostered among the construction workforce to implement environmentally sound practices to minimise environmental incidents and maximise environmental compliance. The workforce is to be briefed on their environmental obligation in terms of the EMPR.

Training shall be provided in terms of the site's environmental features, sensitivities, and examples of heritage finds. The EMPR and Composite Map of the study site would be presented to employees to highlight specific requirements and sensitivities.

The DWS Contractor/ESO should provide and facilitate the onsite briefing and demonstration. Awareness training should focus on:

- Description of the environmentally sensitive features i.e. Protected Plants and Wetlands;
- Explain simple key concepts;
- Provide examples of environmental degradation and pollution sources
- Explain the roles and responsibilities of the contractors, and employees in managing the environment;
- Devise basic principles to manage the environment
- Indicate laws applicable to the management and protection of the environment;
- Indicate day-to-day preventative measures to assist elimination of pollution and degradation (prevention is better than cure)

The DWS Project Manager, Contractor/ESO would be responsible to re-evaluate the need for environmental awareness training based on recorded incidents and developing issues.

A signed register documenting all employee's environmental training and awareness programmes must be kept on record for verification purposes.

9 ASPECTS / IMPACTS ASSOCIATED WITH THE CASTEEL DSRP

A summary of the identified impacts including significance pre and post mitigation is provided below in **Table 4**.

Table 4: Summary of the significance of impacts pre-and post-mitigation

Impact	Significance (pre-mitigation)	Significance (post mitigation)
Planning Phase		
Potential impact on community rituals conducted at Casteel Dam	Moderate (-)	Very Low (-)
Potential impact on SANRAL R40 road upgrade logistics	Moderate (-)	Very Low (-)
Stakeholder expectations regarding job creation may create social tension between communities and tribal authorities.	Moderate (-)	Low (-)
Construction Phase		
DIRECT AND INDIRECT IMPACTS		
Loss of habitat with Very High Terrestrial Biodiversity Theme and wetland vegetation with 'High' SEI.	Moderate (-)	Low (-)
Additional invasion of natural habitat by alien invasive species	Moderate (-)	Low (-)
Destruction of Protected Plants	Moderate (-)	Low (-)
Destruction of Habitat for Faunal SCC	Moderate (-)	Low (-)
Increase in poaching activities	Low (-)	Low (-)
Potential for soil erosion and sedimentation of downstream CVB and Tlulandziteka River.	Moderate (-)	Low (-)
Destruction of wetland habitat	Moderate	Moderate (-)
Water quality deterioration	Low (-)	Very Low (-)
Altered Hydrology	Low (-)	Very Low (-)
Dam failure result in high sediment loads into the watercourse up to confluence with Tlulandziteka River.	Moderate (-)	Low (-)
Increased solid waste may impact CVB wetland downstream of Casteel Dam	Low (-)	Very Low (-)
Increased traffic (62AM and 62 PM trips) at the R40 Casteel Dam access intersection and at Wales Road intersection. (All intersections operating at acceptable level of service).	Low (-)	Very Low (-)
Slow turning construction vehicles entering/exiting the R40 at Casteel Dam access road intersection pose a safety risk to road users.	Moderate (-)	Low (-)
Increased noise at nearby residences (40m from site) due to movement of construction trucks and machine onsite, specifically dumping of rock. (Loading and offloading)	Moderate (-)	Low (-)
Dust fall out from clearing of vegetation, bulk earthworks, movement of construction vehicles and machinery on site may impact nearby residences.	Low (-)	Low (-)
Creation of job opportunities for unskilled labour from local communities.	Moderate (+)	

Impact	Significance (pre-mitigation)	Significance (post mitigation)
Capital injection into the local economy through the purchase of construction material and goods locally.	Moderate (+)	
Temporary restriction of fishing and grazing in works area at Casteel Dam.	Low (-)	Low (-)
CUMULATIVE IMPACTS		
Loss of habitat of medium to high sensitivity, low number of SCC for fauna and flora	Moderate (-)	Low (-)
Further spread of alien invasive species to vegetation communities and adjacent habitat.	Moderate (-)	Low (-)
Destruction of protected plants due to moderate to high density of at least two species within the study area.	Moderate (-)	Low (-)
Remaining impacts during Operational Phase		
Additional spread of alien invasive species along rehabilitated areas.	Moderate (-)	Low (-)

10 RECOMMENDED ENVIRONMENTAL MANAGEMENT ACTIONS

The following tables forms the basis of this EMPr and should be implemented as an auditing list during the proposed Casteel Dam DSRP phases.

Section 10.1 to 10.3 (Table 5, 6 and 7) contains the management programme for the project phases required to manage expected risks and to achieve the relevant standards. The management programme describes the following:

- Affected aspect.
- Potential impact identified.
- Management outcomes i.e., desired outcome of the management measure
- Management targets i.e., level of performance to accomplish the management outcome.
- Management actions i.e., practical action aimed at achieving the management outcome.
- Standard to be achieved.
- Responsibility i.e. Who is responsible for implementing the action?
- Monitoring requirements including frequency.

10.1 Planning /Procurement Phase Prescribed Management Actions

Table 5: Planning Phase Prescribed Management Actions			
10.1.1 SOCIAL AND ECONOMIC IMPACTS			
Potential Risk: Social tensions between DWS Contractor, communities due to expectations of job opportunities which has the potential to delay construction activities.			
Management Target:			
<ul style="list-style-type: none"> • Maximise potential job creation for locals. Prevent unnecessary social order disturbance. • Minimise risk for social ills and tension associated with workforce influx to the area by employing unskilled labour as agreed to by the proposed project stakeholder committee (PSC). 			
Management Action	Standard Achieved	Responsibility	Monitoring Frequency
a) Establish a project steering committee (PSC) with the political principals, traditional councils, local authority to serve as ‘a stakeholder committee’ responsible to identify local labour for the project. b) The DWS Construction Management Team (or appointed Contractor) to be introduced to the PSC during the procurement phase and together agree on a ‘Social Economic Development (SED) Plan’ on the employment of unskilled labour from the communities. A ‘locals first’ policy about labour needs to be implemented. c) The SED must align with the Integrated Development Plan (IDP) of the Bushbuckridge Local Municipality. d) Establish a site office at the Thusong Centre managed by a Community Liaison Officer (CLO) where public can lay complaints or obtain information regarding the construction activities and job opportunities.	SED aligned with IDP of local municipality. Employment of local unskilled labour through a PSC.	DWS Stakeholder Manager to establish the PSC and SED. DWS Project Manager, Contractor DWS Project Manager	PSC can convene during procurement phase thereafter on a quarterly basis (as necessary). No external monitoring required.
10.1.2 HERITAGE AND CULTURAL RESOURCES/COMMUNITY CUSTOMS			
Potential Risk:			
The rehabilitation works and site establishment at Casteel Dam may temporarily restrict community rituals conducted at Casteel Dam.			
Management Target:			
<ul style="list-style-type: none"> • Community provided with an opportunity to perform rituals/customs prior to construction commencement. 			
Management Action	Standard Achieved	Responsibility	Monitoring Frequency
<ul style="list-style-type: none"> • The PSC to engage the traditional council and community to establish when and where community rituals are performed, and how this can be accommodated prior to the commencement of the construction activities. 	Cultural heritage is acknowledged.	DWS Stakeholder Manager, Contractor	One-off

10.1.3 TRAFFIC IMPACT

Potential Risk: Potential impact on road safety due to slow turning construction vehicles at the R40/Casteel Dam access intersection.

Management Target:

- Implementation of temporary construction traffic signage and flagmen along the R40, North of Casteel Dam access road.

Management Action	Standard Achieved	Responsibility	Monitoring Frequency
a) DWS to obtain approval from SANRAL during the planning phase to add the gravel shoulder to the R40/Casteel access road and to implement the additional safety precautions along the R40 at the Casteel Dam access road i.e., temporary flagmen, construction signage. b) DWS to notify SANRAL of the construction start and end dates for consideration by SANRAL during the R40 upgrade.	SA Road Traffic Signs Manual. Approval from SANRAL.	DWS Project Manager,	Once-off

10.1.4 TERRESTRIAL BIODIVERSITY

A. Loss of protected tree species i.e., *Sclerocarya birrea* (Marula Tree).

Management Target:

- Limit removal of protected trees to footprint area.
- Remove nationally protected tree species under permit issued by DFFE Forestry Regulation and Support.

Management Action	Standard Achieved	Responsibility	Monitoring Frequency
a) Identify and mark protected tree species <i>Sclerocarya birrea</i> to be removed within the site establishment and rehabilitation works area. b) Obtain destruction permits in terms of Section 15 (1) of the National Forest Act from DFFE Forestry Regulation and Support to remove the Marula Trees.	Section 15 (1) National Forest Act, (Act 84 of 1998) Permit.	Marking of trees by Ecologist. DWS Project Manager to apply for permits	ECO to audit one-off to ensure permits are in place.

10.2 Construction Phase Prescribed Management Actions

Table 6: Construction Phase Prescribed Management Actions

10.2.1 CONSTRUCTION SITE MANAGEMENT			
<p>Aspects covered:</p> <ul style="list-style-type: none"> • Site demarcation • Site clearing may result in loss of topsoil, erosion. • Site preparation – material stockpiling (topsoil stripping during site clearance and earthworks) • Stormwater and Erosion control • Access and or haul roads must be maintained in a good condition (specifically the gravel road from Casteel Village to the Casteel Dam spillway section. • Site laydown area and its location (site establishment area located northeast of Casteel Dam) 			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target:</p> <ul style="list-style-type: none"> • Limit the footprint of disturbance, vegetation loss and possible erosion. • Good quality topsoil is maintained for successful rehabilitation. • Indigenous vegetation will be re-instated on disturbed areas to curb erosion of soils and maintain biodiversity. • Protection of soil resources • Maintain access roads in good condition. <p>Action – Site demarcation</p> <ol style="list-style-type: none"> Identify and clearly mark the extent of rehabilitation works area as per the approved site layout plan. No activities other than the required rehabilitation works may take place within 50m of the delineated Channelled Valley Bottom Wetland downstream from Casteel Dam. Any excavations/donga posing a risk must be clearly demarcated. Identify and transplant all specimens of <i>Aloe barbertoniae</i> within the proposed development footprints into either adjacent habitat or used in landscaping / re-vegetation around the construction site. <p>Action – Site preparation</p> <ol style="list-style-type: none"> Topsoil excavated / removed during earthworks must be stockpiled on site for use during rehabilitation. Stockpiles must be protected from wind and rain and monitored for erosion. Stockpiles must not be allowed to become contaminated with oil or diesel which may prevent the later regrowth of vegetation (for rehabilitation purposes). 	<p>Site demarcated as per the approved site plan (composite map)</p> <p>No visible erosion of stockpiles or weeds.</p> <p>Successful re-vegetation of denuded areas (where required).</p> <p>No soil contamination.</p>	<p>Contractor ESO</p>	<p>Daily</p>

<p>h) Do not stockpile topsoil in drainage lines or within 50m of the wetland downstream of Casteel Dam,</p> <p>Action – Stormwater and Erosion control Addressed under item 10.2.2 and 10.2.3.</p> <p>Action - Access Roads</p> <p>a) The alternative gravel access road through Casteel Village, to be used by the Contractor to access the Casteel Dam spillway, must be maintained in good condition through the construction period i.e., potholes, corrugations, stormwater damage created by construction vehicles.</p> <p>b) The Contractor must ensure that the usage of the Casteel village gravel road has limited impact road usage by local communities. It will also be necessary for the Contractor to mark this route with signage as a temporary construction route.</p> <p>c) The temporary ‘short alternative access road’ created to access the spillway section of Casteel Dam must be rehabilitated post construction by the Contractor.</p> <p>Action - Site laydown area (Construction laydown area)</p> <p>a) Clearly mark the site establishment area as per the approved site layout plan. A 10-meter Buffer must be upheld between the drainage line and placement of the site establishment area (refer to the Composite Map provided in Figure 4-3 of this EMPR).</p> <p>b) The laydown area will need to be fenced off for the duration of the construction period.</p> <p>c) The Contractor must attend to stormwater management within the site establishment area to avoid further rill erosion of the dam embankment.</p> <p>d) Where onsite refuelling of vehicles is required, it should take place in a dedicated area on an impermeable hardened surface to prevent soil and water contamination with the site laydown area. The only permitted method of fuel transfer is by means of pump/controlled valve/tap/hose of funnel.</p> <p>e) Emergency repairs to vehicles/machinery onsite must be done with drip trays to ensure collection of oil.</p> <p>f) Fuel must be stored in containers in a bunded area able to contain at least the full volume of one container.</p> <p>g) Any hazardous materials such as Hydrocarbons, chemicals, domestic chemicals, battery acids, paint, and oil must be stored in secure, safe, and weather-proof facilities.</p>			
--	--	--	--

10.2.2 TERRESTRIAL BIODIVERSITY (FAUNA AND FLORA)

A. Loss of habitat with 'Very High' Terrestrial Biodiversity Theme (STR) and wetland vegetation community with 'High' SEI (Channelled Valley Bottom Wetland) due to site clearing and earthworks. The impact is however limited since the portion of wetland affected is approximately 0.1-hectares.

Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target:</p> <ul style="list-style-type: none"> • Restrict loss of habitat to the footprint area and avoid unnecessary disturbance to the site and adjacent habitats. • Minimise the alteration of adjacent habitat communities. Reinstate indigenous vegetation on disturbed areas to curb erosion and maintain biodiversity. <p>Action:</p> <ul style="list-style-type: none"> • Vegetation clearance must be conducted in the dry months between April and September, prior to the onset of the rains. The seasonal arrival of the rain season subsequent to construction will then allow for the natural re-vegetation of bare areas from the seedbank within the soil. • No additional construction activities or tracks should be placed within any wetland or riparian areas. • All diesel and other harmful chemicals should be stored in environmentally safe areas away from the dam and river. • All building rubble should be removed from the site and not remain within the development area. 	<p>Biodiversity management in accordance with the NEM: Biodiversity Act of 2004.</p> <p>Compliance with Section 19, 20 of NWA 36 of 1998.</p>	Contractor ESO	According to Terrestrial Ecologist no monitoring actions are required.

B. Additional invasion of natural habitat by alien invasive plant species due to clearing of vegetation and earthworks. 20 Alien species of which 8 are declared have been recorded onsite. Additional invasion is likely due to construction activities.

Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target:</p> <ul style="list-style-type: none"> • Ensure appropriate management of the spread of alien invasive plant species onsite and to surrounding habitats. • Minimise the alteration of adjacent habitat communities. <p>Action:</p>	Control of alien invasive plant species in line with the NEM: BA 2020 Alien and Invasive Species Regulations referring to	Contractor, ESO	According to Terrestrial Ecologist no monitoring actions are required.

<ul style="list-style-type: none"> All declared alien plants within a 100 m buffer around the proposed development must be eliminated according to the DEA's published guidelines (DEA, 2015). These are species that have been listed under the National Environmental Management: Biodiversity Act (Act No. 10 OF 2004). It is important that weed control, if involving herbicides, be managed correctly to reduce the impact on the adjacent natural vegetation. Implement an Alien Invasive Species Control Programme. 	Gazette No. 1020 of 2020.		
C. Destruction of Protected Plants - 3 Protected species i.e., Marula (National), Aloe barbertoniae (in high density) and Gladiolus cf. crassifolius			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target:</p> <ul style="list-style-type: none"> No loss of provincially protected plant species (Aloe barbertoniae, Gladiolus cf. crassifolius) as it is transplanted adjacent habitat. Destruction of Marula Trees under permit from DFFE: Forestry Regulation and Support. <p>Action:</p> <ul style="list-style-type: none"> All specimens of Aloe barbertoniae within the proposed development footprints should be carefully dug up with their roots intact and transplanted into either adjacent habitat or used in landscaping / re-vegetation around the construction site. Destruction permits from the relevant authorities may have to be applied for, particularly about the destruction of the tree Sclerocarya birrea. 	<p>Removal of protected tree under Section 15 (1) National Forest Act, (Act 84 of 1998) Permit.</p> <p>No loss/destruction of provincially protected plants species (transplanted).</p>	<p>DWS Project Manager DWS Construction Management (or appointed Contractor) ESO</p>	<p>Once off</p>
D. Destruction of Habitat for Faunal SCC due to construction works and construction staff/workforce present on site. Displacement of these animals through noise and human presence also reduce habitat/natural vegetation by up to 3 hectares. But the spatial extent of project is limited and only few SCC is likely to ever be present.			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target: Restrict loss of habitat to the footprint area and avoid unnecessary disturbance to the site and adjacent habitats.</p> <p>Action: During the construction phase, the surrounding area should be deemed out of bounds to restrict movement of workers and disturbance of the surrounding habitat.</p>	<p>Adjacent faunal habitats remain intact.</p>	<p>Contractor ESO</p>	<p>According to Terrestrial Ecologist no monitoring actions are required.</p>
E. Increase in poaching activities: Due to unsupervised construction workers participating in small-scale poaching through netting of fish in Casteel Dam and downstream Tlulandziteka River. Harvesting of medicinal plants for local retail markets.			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency

<p>Target: No evidence of poaching/ minimisation thereof.</p> <p>Action:</p> <ul style="list-style-type: none"> • Perform regular inspections around the construction site to search for evidence of poaching. • Conduct regular Environmental Awareness Training 	<p>No reported or visual evidence of animal mortalities onsite or medicinal plant harvesting.</p>	<p>ECO Contractor, ESO</p>	<p>Difficult due to lack of access control.</p> <p>Throughout construction phase.</p>
<p>F. Potential for soil erosion and sedimentation of downstream CVB and Tlulandziteka River due to rain and sediment laden runoff from loose and bare soils around cleared areas and hardened surfaces.</p>			
<p>Impact Management Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target:</p> <ul style="list-style-type: none"> • Avoid sedimentation and erosion of downstream wetland below dam embankment. • Stormwater infrastructure in place to control run-off and trap sediment. <p>Action:</p> <ul style="list-style-type: none"> • Suitable drains and other stormwater infrastructure should be constructed in areas where run-off is likely. • DWS will rehabilitate the large areas of active sheet erosion on the western side of the dam wall and spillway by establishing/constructing slope protection to prevent further sedimentation of downstream wetland and riparian areas. • Every effort should be made to avoid unnecessary erosion of soil and sedimentation of downstream areas around the construction works. This may include, but not be restricted to, the installation of drains along the access road and sediment traps below construction areas. 	<p>Compliance with Section 19, 20 of NWA 36 of 1998 and Conservation of Agricultural Resources Act (Act 43 of 1983).</p>	<p>Contractor ESO</p>	<p>Daily</p>
<p>10.2.3 AQUATIC BIODIVERSITY</p>			
<p>A. Destruction of wetland habitat - Destruction of 0.1ha of CVB wetland habitat due to vegetation clearance and bulk earthworks associated with the rehabilitation works. But the wetland is already affected by the existing dam wall therefore the intensity would be minor.</p>			
<p>Management Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target: Maintain activities to rehabilitation footprint areas to limit the impact on the wetland habitat and subsequent rehabilitation of works area.</p> <p>Action:</p> <p>a) An independent ECO must be appointed by DWS to monitor compliance with the authorisation during construction. The ECO must be appointed prior to commencement of construction and be involved in all aspects of project planning that can influence environmental conditions on the site. Where possible, the ECO must attend relevant project meetings, conduct inspections to assess compliance with the authorisation and</p>	<p>Compliance with Section 19, 20 of NWA 36 of 1998.</p>	<p>Contractor ESO</p>	<p>Daily</p> <p>According to Aquatic Ecologist no monitoring actions area required.</p>

<p>relevant Health and Safety regulations, and be responsible for providing feedback on potential environmental problems associated with construction. The ECO must be vigilant for any impacts that were unforeseen and take appropriate steps to avoid or minimise any such impacts.</p> <p>b) Construction activities in the CVB Wetland downstream of Casteel Dam must be minimised. All support operations should be done outside the wetland. A buffer zone of at least 50 m from the edge of the wetland is recommended for all activities that are not needed within the wetland. (Refer to Figure 4-3 for site sensitivity map illustrating the 50m buffer zone to be upheld).</p> <p>c) All portions of the CVB Wetland downstream of Casteel Dam that are disturbed during construction but not covered by fill for the extended wall must be rehabilitated. The aim of the rehabilitation must be to recreate the same mix of habitats, including natural topography and substrates that were present prior to disturbance.</p>			
<p>B. Water Quality Deterioration: Construction works i.e., concrete batching, washing of equipment refuelling, spills and leaks, ablution, and sediment mobilisation. The activities have the potential to contaminate surface water in and downstream of Casteel Dam.</p>			
<p>Management Target and Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target:</p> <ul style="list-style-type: none"> • Ensure soil protected from cement contamination during concrete mixing onsite. • Prevent water quality deterioration in the Casteel Dam and delineated CVB wetland. <p>Action:</p> <p>a) The proposed works must be scheduled to take place during the dry season (i.e., May to November, inclusive).</p> <p>b) No washing of vehicles or equipment should be undertaken within 50 m from the delineated CVB wetland or Full Supply Level of the dam. Washing and maintenance of vehicles and equipment should be conducted in the areas designated for this purpose.</p> <p>c) No refuelling should be allowed within 50 m from the Full Supply Level of the dam, or within 50 m from the wetland. Diesel/fuel should be stored on an impermeable surface.</p> <p>d) Provide drip pans for generators, or any machinery that will be in position for longer than one day. Provide bunding around all diesel tanks, oil drums and generators.</p> <p>e) Where oil and fuel spills are expected, parking is to be on an impervious surface with adequate pollution control mechanisms in place. Accidental spills must be attended to immediately and details recorded in an on-site logbook. The details will include date and locality of spill, distance to the nearest watercourse, type of material, estimated quantity of spill, contact details of the people involved, mitigation steps taken and results of any subsequent monitoring. Small quantities of soils contaminated by hydrocarbons should be treated in situ using bioremediation. Large quantities of contaminated soil or</p>	<p>Compliance with Section 19, 20 of NWA 36 of 1998.</p> <p>No visible fuel leakages from vehicles and equipment in designated parking and works areas. Drip trays under construction vehicles or machinery with visible leaks.</p>	<p>Contractor ESO</p>	<p>Daily</p>

<p>other materials should be removed and treated as hazardous waste in an appropriate manner. Contractors should be responsible for the bioremediation of their own soil until the following standards are met: i) there is no hydrocarbon odour; ii) soil particles do not coagulate because of hydrocarbon contamination; iii) there is no visual evidence of hydrocarbons in the soil. Where there is uncertainty, the soil shall be sent for analysis.</p> <p>f) Temporary (mobile) on-site toilet facilities should be available and properly maintained. Provision shall be made for at least one toilet per 10-15 personnel on site. Staff shall not be permitted to use the natural environment as a toilet.</p> <p>g) Stormwater Management Plan. A plan to manage stormwater runoff must be developed and implemented. The aims of this plan should be: 1) to minimise the transport of sediments from the proposed work area; 2) minimise the risks of erosion; and 3) minimise the contamination of stormwater.</p>			
<p>C. Altered hydrology: Rehabilitation works to the dam outlet has the potential to alter flow patterns downstream of Casteel Dam and can impact aquatic biota negatively down to the confluence with the Tlulandziteka (Sand) River.</p>			
<p>Management Target and Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target: Uninterrupted water supply to downstream farmers and communities. Ecological Reserve is maintained for aquatic biota.</p> <p>Action:</p> <ul style="list-style-type: none"> - The average monthly ecological Reserve should be released from Casteel Dam. 	<p>Ecological Reserve is maintained for aquatic biota and basic human need (Section 16 of NWA)</p>	<p>DWS Engineer / Project Manager Contractor ESO</p>	<p>Daily</p>
<p>D. Dam Failure due to gully erosion in spillway channel, termite infestation in dam wall, compromised structural integrity of dam wall due to woody vegetation probable to result in high sediment loads into the watercourse up to the confluence with the Tlulandziteka River. Such an impact if it is to take place is irreversible.</p>			
<p>Management Target and Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target:</p> <ul style="list-style-type: none"> • Dam Safety • Treatment of termites in dam wall. <p>Action:</p> <p>a) The DWS will need to apply Termiticides (liquid pesticides) to the dam wall where termite infestation is present to treatment or prevent further infestations. However toxic soil termiticides is not recommended since it can impact the water purity. The quality of water within Casteel Dam must be maintained for human consumption.</p> <p>b) DWS will need to conduct downstream river monitoring before and after application of the pesticide to monitor for possible seepage contamination by pesticides applied in termite management on the dam wall.</p>	<p>Compliance with Section 12 of the NWA, Dam Safety Regulations.</p>	<p>Contractor Independent Dam Safety Engineer.</p>	<p>Conduct downstream river monitoring before and after application of the pesticide to monitor for possible seepage contamination by pesticides</p>

<p>c) Dam Safety Review. The proposed civil works must be reviewed by an independent Dam Safety Engineer(s). The review should pay particular attention to the proposed rehabilitation of the spillway donga, and the risks of the existing termite infestation on the structural stability of the existing wall.</p> <p>d) Dam Safety Inspections. Periodic inspections must be undertaken by an independent Dam Safety Engineer(s), as required in terms of Dam Safety Regulations.</p> <p>e) Dam Maintenance Programme. A long-term maintenance programme for the dam must be developed and implemented. Particular attention must be given to 1) the control of erosion in the spillway channel; 2) the control of termites in the wall; and 3) the control of woody vegetation on the wall.</p>			
<p>E. Increased spread of alien invasive species: Clearing of vegetation associated with the rehabilitation works and site establishment is highly likely to cause serious spread of alien plant species (infestation) some distance downstream of Casteel Dam.</p>			
<p>Management Target and Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target: Ensure appropriate management of the spread of alien invasive plant species onsite and to surrounding habitats.</p> <p>Action:</p> <p>a) Control Alien Invasive Species: Declared alien invasive vegetation within all areas disturbed by site preparation and construction should be controlled at the end of construction, and at annual intervals during operation.</p> <p>b) Personnel tasked to control alien vegetation should receive appropriate training in the following: methods and control measures; equipment and techniques; types of herbicides and dosages applied; mixing techniques; storage of chemicals and equipment; health and safety issues; plant identification; procedures for equipment washing; equipment maintenance; record keeping, inter alia.</p>	<p>Control of alien invasive plant species in line with the NEM: BA 2020 Alien and Invasive Species Regulations referring to Gazette No. 1020 of 2020.</p> <p>Environmental Awareness Register</p>	<p>DWS Contractor</p> <p>ESO</p>	<p>End of construction, annually</p>
<p>F. Increased solid waste: Discard of building material, domestic waste during the construction works may impact the CVB wetland downstream of Casteel Dam.</p>			
<p>Management Target and Action</p>	<p>Standard Achieved</p>	<p>Responsibility</p>	<p>Monitoring Frequency</p>
<p>Target:</p> <ul style="list-style-type: none"> Waste Management through removal and appropriate disposal at the Casteel Disposal Site. Site kept clear of any waste that can pollute the environment. 	<p>Section 19 of NWA Chapter 4, Section 16 and 27 of the NEM: WA.</p>	<p>Contractor</p> <p>ESO</p> <p>ECO</p>	<p>Removal throughout construction period. Removal required on a weekly basis.</p>

<p>Action:</p> <p>a) Housekeeping. Standard good practise for environmental management, including pollution control, solid waste management, and other issues related minimising impacts of construction activities.</p> <p>b) Work sites should be kept tidy and free of scrap metals, wire, bitumen, excess concrete, and other litter.</p> <p>c) Litter bins must be present and emptied regularly. No solid waste or bitumen may be burnt on site.</p> <p>d) Inert rubble and waste rock must be stored in appropriately.</p> <p>e) Contractors must be responsible for the removal and appropriate disposal of all solid wastes generated during construction at the Casteel Disposal Site.</p>	<p>CARA Act 43 of 1983- Section 19.</p> <p>ECA Act 73 of 1989 – Section 20.</p>		<p>Max storage period for domestic waste is 10 days.</p> <p>Construction waste max storage period is 30 days.</p>
--	---	--	---

10.2.4 IMPACT ON CULTURAL AND HERITAGE RESOURCES

Potential Risk:

No heritage, cultural resources were identified on site. It is also highly unlikely to be unearthed since the project site is previously disturbed.

Management Target and Action

Standard Achieved

Responsibility

Monitoring Frequency

Target:

- Avoid any damage / destruction of artefacts.

Action:

a) Should skeletal remains be exposed during construction works, all activities must be suspended, and the relevant heritage resources authority must be contacted.

b) Should culturally significant material be discovered during the works, all activities must be suspended pending further investigation by a qualified archaeologist.

c) Any discovered artifacts are not to be removed. Destruction of a heritage site is only permissible under a permit obtained from the SAHRA.

Compliance with Section 35 (3), Section 36(6) of NHRA.

Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.

Contractor
ESO
ECO
Accredited
Archaeologist

As and when resources are found or identified.

10.2.5 TRAFFIC IMPACT

Potential Risk: Delivery of construction material and slow turning construction vehicles entering/exiting the R40 at Casteel Dam access road intersection pose a safety risk to road users on the R40.

Management Target and Action

Standard Achieved

Responsibility

Monitoring Frequency

Target:

- Road Safety
- Limit use of adjacent road network to off peak time traffic

National Road Traffic Act (No 93 of 1996) – Road safety.

Contractor
ESO

Daily

<p>Action:</p> <p>a) Implement safety precautions at the R40/Casteel Dam access intersection located north of the dam i.e.</p> <ol style="list-style-type: none"> i. Temporary flagmen; and ii. Temporary construction signage in accordance with the SA Road Traffic Signs Manual. iii. Reduce speed to 60km/hr at the locality of the access. <p>b) Safe drop off and collection area at the construction site for daily commuters on public transport.</p> <p>c) Limit unnecessary vehicle movement, specifically during peak time am and pm traffic.</p> <p>d) Transportation and movement of construction machinery must not be undertaken during peak hour traffic.</p>	<p>Movement of construction machinery and materials during off peak time traffic on adjacent road network.</p>		
<p>10.2.6 NOISE, AIR QUALITY (DUST FALLOUT) AND VISUAL IMPACT</p>			
<p>Activity:</p> <ul style="list-style-type: none"> • Clearing of vegetation using excavator • Movement of construction trucks and machinery onsite. • Delivery of construction material specifically rock for use at rehabilitation works. • Rock masonry work to line donga. 			
<p>NOISE RISK:</p> <ul style="list-style-type: none"> - Intermittent increase in ambient noise levels at nearby residences (40m, directly south of the site) (<50dBA). 			
<p>Management Target and Action</p>			
<p>Target:</p> <ul style="list-style-type: none"> • No noise complaints • Manage the construction activities to ensure compliance to the Noise Control Regulations, 1994 and SANS 10103 of 2008. <p>Action:</p> <p>a) Construction works should be carried out between 07h00 – 17h00 on weekdays, and Saturdays from 07h00 – 14h00.</p> <p>b) No construction work should be carried out on Sundays or public holidays.</p> <p>c) All equipment on site should be kept in good working condition and all activities must comply with the Noise Control Regulations and SANS 10103 specifications for maximum allowable noise levels for suburban districts.</p> <p>d) A community complaints register must be kept onsite. Respond to complaints about noise generation by taking responsible action to reduce the impact.</p>	<p>Standard Achieved</p> <p>Maintain a Noise Register.</p> <p>Comply with Section 34 of NEM: AQ 39 of 2004.</p> <p>Noise Control Regulations, 1994</p> <p>SANS 10103 of 2008 (noise levels).</p>	<p>Responsibility</p> <p>CLO Contractor ESO</p>	<p>Monitoring Frequency</p> <p>Daily by ESO</p> <p>Audit monthly by ECO</p>

<p>e) Notify nearby residences (abutting) prior to undertaking activities that may generate high noise levels that may cause a nuisance.</p> <p>f) Workers' exposure to ambient noise levels exceeding 85dBA must wear appropriate Personal Protective Equipment (PPE).</p> <p>g) The Contractor must take measures to discourage labourers from causing noise disturbance. Labour will be transported to and from site by public transportation.</p>	<p>Comply with Environmental Health and Safety Regulations (noise level guidelines). Standard achieved – no noise complaints.</p>		
<p>Activity:</p> <ul style="list-style-type: none"> • Clearing of vegetation, bulk earthworks, movement of construction vehicles and machinery importing and tipping of construction material. • Movement of construction vehicles and machinery along the Casteel village gravel road and alternative access road to the spillway. • Cooking fires by labourers 			
<p>AIR QUALITY RISK (DUST FALL OUT). Dust fall-out may increase at nearby residences including smoke from cooking fires. The impact is however considered to be low.</p>			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target:</p> <ul style="list-style-type: none"> • No community complaints. No visible dust plumes at nearby residences. No cooking fires. <p>Action - Dust Control</p> <p>a) Minimise vegetation clearance to reduce exposure of bare soil surfaces (gradual removal of vegetation in areas immediately prone for rehabilitation).</p> <p>b) No burning of vegetation cover and waste is permitted during construction.</p> <p>c) Minimize dust generation activities, especially during strong winds.</p> <p>d) Apply wet dust suppression where necessary to manage dust emissions from vehicle movement, site clearance and along the alternative access road through Casteel Village,</p> <p>e) Alternative environmentally friendly dust suppressants can be used (i.e., Dust-A-Side)</p> <p>f) Control vehicle speeds along the alternative access passing through Casteel Village to 40km/hour.</p> <p>g) Construction materials piles (i.e., building sand, rock etc.) must not exceed a height of 2m.</p> <p>h) Maintain a dust complaint register.</p> <p>i) Any complaints received need to be investigated and remedial action taken as soon as possible and communicated to plaintiff.</p> <p>Action - Fire Control</p> <p>a) No open fires are permitted anywhere onsite.</p> <p>b) No fires are permitted in the vicinity of a wetland especially during dry season.</p> <p>c) Take immediate action to extinguish any fires that may break on the construction site.</p>	<p>Comply with National Dust Control Regulations of 2013.</p> <p>Main Complaints Register</p> <p>Comply with Section 32 of NEM: AQ 39 of 2004.</p> <p>No visible dust plumes at abutting residences. No complaints registered.</p>	<p>Contractor</p> <p>ESO</p> <p>Complaints Register maintenance and responding to plaintiffs can also be facilitated by a CLO.</p>	<p>Daily</p>

Potential Risk:			
- VISUAL IMPACT. Clearing of vegetation and bulk earthworks may create unsightly views for motorists, tourists, and nearby residences. However, it will be temporary and anticipated to be of low significance.			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
Target: Limit visual disturbance to nearby residences due to night lights. No complaints. Action: a) The construction site must be kept free of litter, contained in appropriate bins/containers, and must be removed on a weekly basis to the Casteel Disposal Site. b) Lighting at the construction site (at night) should be sufficient for security but should not constitute illumination/light pollution to nearby residences. c) Remove rubble off site as soon as possible or place it in a container to keep the site free from additional unsightly elements. d) Rehabilitate or revegetate disturbed areas as soon as practically possible after construction. This should be done to restrict long stages of exposed soil and possible erosion that will result in indirect landscape and visual impacts.	No complaints	Contractor, ESO	Daily
10.2.7 SOCIO ECONOMIC IMPACTS			
Positive Impact:			
- Creation of job opportunities for unskilled labour from local communities (POSITIVE IMPACT)			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
Target: • Maximise potential job creation for locals. • Maintain a good relationship with the traditional authorities and local communities. Action: a) Job opportunities should be available to the local community as identified through the PSC. b) Have a dedicated Community Liaison Officer (perhaps at Thusong Centre) during the construction works to handle any community queries or questions and to communicate project details as and when required.	Employment of local unskilled labour through a PSC.	DWS Contractor	No external monitoring required. PSC convene on a quarterly basis (if necessary).
Potential Risk:			
- Temporary restriction of fishing and grazing in areas of construction works and site establishment area. - Potential impact on community rituals and beliefs conducted at Casteel Dam			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
a) The PSC to communicate to the communities' areas around Casteel Dam where fishing and grazing may continue during the construction phase (away from rehabilitation works and the site establishment area).	Subsistence fishing and grazing can continue	Contractor, ESO CLO	Daily

<p>b) Any complaints in this regard can be recorded on the community complaints register kept onsite and followed up/addressed regularly by the Community Liaison Officer.</p> <p>c) Any rituals or customs by the community will be respected by the DWS Team and logistics around these can be committed to during the PSC sitting during the procurement phase.</p>	<p>safely away from the rehabilitation works.</p> <p>Community rituals can be performed as agreed with the PSC at specific times.</p>		
--	---	--	--

10.2.7 WASTE MANAGEMENT

Activity:

- Generation, storage, and disposal of waste i.e., Construction rubble, domestic waste, hazardous waste, and grey water from chemical toilets.

Potential Risk:

- If not controlled/managed construction waste will have a negative impact (i.e., littering, windblown contamination, pollution of soil, groundwater, stormwater runoff, surface water pollution in wetland and dam).

Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target – General and construction waste:</p> <ul style="list-style-type: none"> • Correct waste storage and disposal decreased visual and environmental impact during construction. • Minimise community complaints. • Disposal of rubble and refuse in appropriate manner. • Disposal of waste at the municipal Casteel Disposal Site. <p>Action – General and construction waste management:</p> <p>Construction rubble and litter management</p> <p>a) Waste skips/bins must be provided at strategic positions on the construction site (site establishment area and rehabilitation works area) to ensure that the waste does not accumulate at the works areas.</p> <p>b) All solid waste must be removed off-site every weekly (pending volume of waste produced) using a waste disposal truck (licensed contractor/municipality) to the Casteel Disposal Site.</p> <p>c) Construction rubble must be disposed to demarcated spoil dumps at the Casteel Disposal site or as agree with the Bushbuckridge Local Municipality.</p> <p>d) Proof of certificate of safe disposal/municipal disposal slips must be kept on record and provided to the ECO during monthly audit inspections.</p> <p>e) The maximum waste storage period is provided below:</p> <ol style="list-style-type: none"> No domestic waste may be kept/stored onsite for longer than 10-days. 	<p>Chapter 4, Section 16 and 27 of the NEM: WA.</p> <p>CARA Act 43 of 1983- Section 19.</p> <p>ECA Act 73 of 1989 – Section 20.</p>	<p>Contractor</p> <p>ESO</p> <p>Subcontractor Chemical Toilet Company</p>	<p>Removal required through construction period. Removal required on weekly basis.</p> <p>Max storage period for domestic waste is 10 days.</p> <p>Construction waste max storage period 30 days.</p> <p>ECO to audit compliance.</p>

<p>ii. No construction waste may be kept/stored for longer than 30-days.</p> <p>f) Surplus concrete must be removed from site when nearing completion of different stages of construction work.</p> <p>g) No littering by staff will be tolerated. The ESO to monitor the work site and site establishment area daily.</p> <p>Target – Hazardous Waste</p> <ul style="list-style-type: none"> Protect soil and groundwater from hazardous waste contamination. Secure a hazardous waste removal contractor to remove hazardous waste to a registered hazardous waste disposal site. <p>Action – Hazardous waste management:</p> <p>a) Hazardous Chemical Substances Regulations promulgated in terms of the OHSA and SABS Code of Practice must be adhered to.</p> <p>b) Hazardous waste must be stored in a bunded / lined area or as advised by the ESO and ECO.</p> <p>c) Used oils, filters, oily rags, or any other hazardous waste must be stored in labelled containers and disposed of at a registered hazardous waste disposal site.</p> <p>d) Hazardous waste may only be stored onsite for a period of 90-days, after which it must be disposed of at a registered hazardous waste disposal site or removed by a hazardous waste removal company.</p> <p>e) Any oil spillage onsite must be excavated to a depth determined between the ESO and ECO and disposed at a registered hazardous waste disposal site.</p> <p>f) Since there are no hazardous waste disposal sites within the municipal area, nearest being Gauteng, it is advised that the DWS appoint a hazardous waste removal company (i.e., EnviroServ, Oilkol etc) to collect the waste and remove it to a registered hazardous waste disposal site.</p> <p>Target – Sanitation</p> <ul style="list-style-type: none"> Protect soil and groundwater from hazardous waste contamination. Secure a hazardous waste removal contractor to remove hazardous waste to a registered hazardous waste disposal site. <p>Action – Sanitation:</p> <ul style="list-style-type: none"> The Contractor must provide adequate chemical toilets for construction workers. 	<p>Storage of hazardous materials in secure, safe, and waterproof facilities.</p> <p>Approved absorbent material available onsite in event of spills.</p> <p>No evidence of spills.</p> <p>Section 19, 20 of NWA.</p> <p>Serviced mobile toilets provided onsite which are serviced regularly.</p>	<p>Contractor ESO ECO Appointed hazardous waste removal company.</p> <p>Contractor ESO</p>	<p>Entire construction period.</p> <p>Hazardous waste max storage period 90-days.</p> <p>Daily</p>
---	--	--	--

<ul style="list-style-type: none"> • An average of one chemical mobile toilet should be provided per 10-15 people at the work site. Male and females must have separate facilities. • The chemical toilets/chemicals must be serviced regularly to prevent overflow. Proof of service must be provided to the ECO. • Chemical Toilets/ablutions must be placed at least 75 meters away from any water source i.e., Wetland, Dam, drainage lines. Given the size restriction of the project site is not possible to uphold the 100m zone. 	No odour or groundwater pollution.		
10.2.8 GROUND AND SURFACE WATER POLLUTION			
Potential Risk: <ul style="list-style-type: none"> • Inappropriate hazardous waste storage may pollute the surface and groundwater. • Potential leaking construction vehicles or equipment and hydrocarbon spillages may cause groundwater pollution. • Concrete mixing operations may pollute surface water bodies (Wetland, Casteel Dam, downstream river) 			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
Target <ul style="list-style-type: none"> • Avoid accidental spillages. • Proper waste disposal procedures • No impact on surface or groundwater quality Action Management and remedy of Hydrocarbon spills, hazardous material storage. <ol style="list-style-type: none"> Leaking equipment and vehicles must be repaired immediately or taken off-site to facilitate repair. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment not in use. Avoid any servicing of vehicles onsite. The contractor shall have an emergency spill kit that must always be complete and available onsite. Clean small oil or fuel spills with an approved absorbent material (e.g., Sawdust, “Drizit” or “Spill-sorb”) Immediately clean any accidental oil or fuel spillages or leakages. Contain any diesel storage tanks/machinery spills (e.g., accidental spills of hydrocarbons, oils, and diesel) in such a way as to prevent them from leaking into the environment. 	Compliance with Section 19, 20 of NWA 36 of 1998. No visible fuel leakages from vehicles and equipment in designated parking and works areas. Drip trays under construction vehicles or machinery with visible leaks.	Contractor ESO	Daily When an event occurs.

<p>h) All storage tanks containing hazardous materials must be stored in a bunded area with enough capacity to contain 110% of the total volume of stored hazardous materials including a freeboard for stormwater entering the bund.</p> <p>i) Hazardous substances must be stored at least 75 meters away from any water body.</p> <p>j) Contaminated wastewater from the rehabilitation works area and construction site/site establishment area must be collected and removed for disposal at a registered licensed wastewater facility.</p> <p>k) No washing or servicing of vehicles onsite.</p> <p>Cement/ Concrete mixing</p> <p>a) Carefully control all on-site operations that involve the use of cement and concrete.</p> <p>b) Limit cement and concrete mixing to single sites where possible.</p> <p>c) Use plastic trays/liners when mixing cement and concrete. Do not mix directly on the ground.</p> <p>d) Cement contaminated water must be contained and not allowed to enter any water system / body.</p> <p>Water resources</p> <p>a) The Contractor must supply construction staff with potable water.</p> <p>b) Municipal water should be sourced for all construction related activities i.e., dust suppression, concrete mixing, compacting etc.</p>			
---	--	--	--

10.2.9 HEALTH, SAFETY AND SECURITY

Potential Risk:

- Increased construction workers/movement in the local area may threaten the security in the area.
- The health and safety of workers and other personnel utilizing the site might be at risk if proper preventative measures are not put in place.

Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
<p>Target</p> <ul style="list-style-type: none"> • Ensure the safety and security of workers, affected communities and assets. • To avoid any mortalities along the R40 due to slow moving construction vehicles. • First aid facilities available onsite and ensure that all construction staff are trained in basic safety procedures. 	<p>No safety and or security incidences.</p> <p>No complaints</p> <p>Compliance with the Occupational Health and Safety Act 85 of 1993.</p>	<p>DWS Project Manager</p> <p>Contractor</p> <p>Staff</p> <p>ESO</p> <p>ECO audit</p>	<p>Daily (Throughout construction phase)</p>

<p>Action</p> <p>Security</p> <ul style="list-style-type: none"> a) The Contractor must provide identifiable overalls with logos to construction staff/workers. b) Workers must not be allowed to trespass on adjacent private land. c) Construction vehicles must be marked. d) The site establishment area (laydown area) must be fenced for the duration of the construction period. Securing the site will reduce the opportunity for criminal activity at the construction site. <p>Safety on site</p> <ul style="list-style-type: none"> a) Appropriate warning signs must be in place to notify the public and construction staff regarding construction activity and any areas of high risk i.e., open excavations etc. b) All temporary traffic safety signage must be upheld along the R40 along the Casteel Dam access road for the duration of the construction period. <p>Worker's safety</p> <ul style="list-style-type: none"> c) Workers must be supplied with hearing protection if noise levels exceed 85dB (decibels). i.e., earplugs. d) Personal Protective Equipment (PPE) and clothing is compulsory for all construction staff and must be supplied by the Contractor. i.e., Clothing, Hard hats, shoes, (masks, gloves, and safety ropes as necessary). e) First aid facilities must be available at the construction site including a Health and Safety Officer trained to execute first aid procedures. f) Ensure that all personnel are trained in basic site safety procedures. g) Keep a register with contact numbers of all people employed and a next of kin in case of emergency. h) Keep a list of emergency numbers in easily accessible location on site. i) Keep a record of incidents, accidents and illnesses on site and make the information available to the Project Manager and ECO and available at meetings. <p>Fire Management</p> <ul style="list-style-type: none"> a) The Contractor must ensure that operational fire fighting equipment is always present onsite as per OHSA. b) Flammable substances must be stored in dry areas which do not pose an ignition risk to said substances. c) No open fires are permitted onsite. a) Do not permit any smoking within 3m of any fuel or chemical storage area, or refuelling area. 			
--	--	--	--

10.3 Decommissioning Phase of Construction Activities Prescribed Management Measures

Table 7: Decommissioning Phase of Construction Activities Prescribed Management Measures

10.3.1 IMPACT ON TERRESTRIAL BIODIVERSITY			
Potential Risk: Additional spread of alien invasive species along rehabilitated areas.			
Management Target and Action	Standard Achieved	Responsibility	Monitoring Frequency
Target: Eradicate alien invasive species onsite and within the CVB. Action: Mitigation measures as recommended for the construction phase need to be repeated during the operational phase to ensure eradication of declared alien species.	Control of alien invasive plant species in line with the NEM: BA 2020 Alien and Invasive Species Regulations referring to Gazette No. 1020 of 2020.	DWS Contractor/ DWS	According to Terrestrial Ecologist no monitoring actions are required.
10.3.2 DECOMMISSIONING OF CONSTRUCTION SITE AND REHABILITATION OF DISTURBED AREAS			
Management Action	Standard Achieved	Responsibility	Monitoring Frequency
Removal of infrastructure a) Empty fuel storage tanks prior to removal. b) Clear and completely remove from site all construction equipment, storage containers, temporary fencing, temporary services, fixtures, and any other temporary works. b) Clear the site of all inert waste and rubble, including surplus rock, foundations, and batching plant aggregates. c) Remove all wastes and dispose of at Casteel Disposal Site. Proof of certificate of safe disposal/municipal disposal slips must be kept and provided to the DWS Project Manager. Shaping and Landscaping d) Shape all disturbed areas to blend in with the surrounding landscape. e) Ensure that no excavated material or stockpiles are left on site and that all material remaining is smoothed over to blend in with the surrounding landscape. f) Contouring of CVB Wetland below Casteel Dam.	Project site is rehabilitated to its natural state and maintained.	DWS Project Manager, Contractor ESO	Daily

<p><i>Ripping of compacted and disturbed areas</i></p> <ul style="list-style-type: none"> g) Cover the compacted construction laydown area and all other disturbed areas (bare soils) with topsoil prior to the rainy season or any expected wet weather conditions (September to October). h) Rip all areas disturbed by the construction and executed rehabilitation works (i.e. site establishment area, areas next to realigned access road, temporary access road at spillway). Ripping must be done along the contour to prevent creation of down-slope channels. i) Rehabilitate the site establishment area to its natural state. <p><i>Revegetation</i></p> <ul style="list-style-type: none"> j) Re-vegetated the ripped areas i.e., from harvested grass seeds from the surrounding area/hand seeding. k) All portions of the CVB wetland downstream of Casteel Dam disturbed by construction (not covered with fill material) must be contoured and topsoil replaced to create the same mix of habitat and natural topography and substrates that were present prior to disturbance. l) Keep grazers (cattle, goats) out of rehabilitated areas, if possible, until the suitable vegetation cover has established. m) Cordon off the areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access or the area may be covered by branches. <p><i>Erosion</i></p> <ul style="list-style-type: none"> n) If erosion has occurred, usable soil should be sourced and replace and shaped to reduce recurrence of erosion. o) It may be necessary to also implement slope protection along the eastern bank of Casteel Dam below the rehabilitated 'site establishment area'. p) Any rain event over the rehabilitated area (prior to vegetation being established) will exacerbate the current rill erosion evident along the eastern bank. <p><i>Site sign off:</i> The DWS Engineer and Project Manager must conduct a site inspection to sign off the completed rehabilitation works and that it is satisfied with the rehabilitation of the disturbed construction areas compared to the pre-construction Photographic Report.</p> <p><i>Maintenance:</i> Allow for a maintenance period of 6 months to one year following practical completion.</p>			
---	--	--	--

11 ADMINISTRATIVE REQUIREMENTS

11.1 Record Keeping

All legal documents required for the project must be available at the project site:

- Environmental Authorisation issued by DFFE.
- DFFE approved EMPr
- DFFE Protected Tree Permits must be kept on record.
- Signed Environmental awareness training register.
- Environmental Audit Reports (against the EMPr)
- Public Complaints register.
- Record of emergency incidents and recorded action taken for remediation

The ESO is responsible for maintaining all records concerning the EMPr requirements on site. Relevant construction staff, DWS Construction Management Team and sub-contractors must be acquainted with the contents of the EA and the EMPr.

A complaints register must be kept by the ESO at the site and all complaints must be recorded. Complaints shall be investigated within 24 hours, corrective action implemented, and feedback should be given to the complainant on the remedial action taken.

The ESO shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Such emergency shall be reported to DWS Project Manager.

Project permits should be reviewed on an annual basis to verify validity. Expiry of permits/licenses should be foreseen and renewed in time.

Records to be kept at the site always include:

- Waste manifest / safe disposal documents

All records as stipulated above must be made available to the ECO on request during the monthly audits, as well as at any time as requested by the DFFE.

11.2 Emergency Preparedness to avoid pollution/degradation of the environment.

An environmental risk deals with the probability of an event causing a potentially undesirable effect on the environment. It can be defined as an accident-causing adverse effects by effluents, emissions, wastes, veld fires, chemical spills and leaks which result from natural, technological, or human-induced factors.

How risks will be dealt with include:

- Contain potential pollutants and contaminants.
- Ensure that handling of potential pollutants and contaminants is conducted in a bunded area on impermeable surfaces.
- Implement the waste management for all waste streams on site.

Where environmental emergencies arise, applicable emergency procedures must be followed. The name of responsible personnel and emergency services shall be available to staff and shall be displayed at the project site.

The ESO shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Telephone numbers of emergency services shall be always with the DWS Construction Management Team / Contractor and ESO.

The responsibility of the ECO is.

- Identify problem areas and provide action plans to avoid further environmental damage.
- Review the proposals for pollution control measures and advise on its adequacy.
- Ensure that significant environmental incidents are reported to the DFFE.

The DWS Construction Management Directorate and appointed ESO are responsible for the practical implementation of the EMPr and will be responsible for reporting the environmental incident/risk to the ECO.

(a) Fire

The DWS Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The DWS Contractor and ESO shall ensure that employees are aware of the procedures to be followed in the event of a fire.

(b) Accidental leaks and spillages

The DWS Contractor and ESO shall ensure that employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the ECO and the relevant authorities. The contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are always available on site. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the ECO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Any spills must be cleared, and the contaminated soil/sludge disposed of in an appropriate manner, approved by the ECO, or at a licensed hazardous waste disposal site.

(c) Noncompliance with the EMPr or any applicable legislation

(d) **Environmental incidents** shall be investigated by the competent person and an environmental incident report shall be forwarded to the holder of the environmental authorisation, DWS Project Manager. Incidents are to be reported to the relevant catchment management agency and DFFE. The incident report shall be filed within 5 working days.

11.3 Penalties for Non-Compliance with the EMPr

Section 28 of the National Environmental Management Act No 107 of 1998 states those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

If the DWS appoints an external Contractor, and such Contractor fails to comply with the requirements of the EMPr, he/she will be penalised.

The ECO and DWS Project Manager will state the value of a fine based on the nature, extent and duration of the offence and subsequent environmental damage and will be within the confines of the contractual arrangements. Such penalties shall be payable in addition to any remediation costs for correction of environmental damage as a result of non-compliance to this EMPr. This will be for the Contractors account (if an external contractor is appointed)

Note that the following is applicable:

- In terms of the Conventional Penalties Act (1962), a creditor is not entitled to recover both the penalty and damages; and
- Accordingly, where a Contractor causes damage, DWS can either enforce a penalty or make the Contractor make good the damage, but not both.

The Contractor (if external Contractor appointed) is deemed NOT to have complied with this specification if:

- Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the EMP;
- Environmental damage ensues due to negligence.
- The Contractor fails to comply with corrective or other instructions issued within a specific time.
- The contractor fails to comply with a site instruction given by the Engineer based on the ECO report;
- The Contractor fails to respond adequately to complaints from the public; and
- Legal action is instituted against the proponent in terms of Environmental laws.

Payment of any fines in terms of the contract will not absolve the offender from being liable for prosecution in terms of any law.

12 CONCLUSION

This EMPr has been prepared by Naledzi Environmental Consultants Pty Ltd for the proposed Casteel DSRP located on the Remaining Extent of the Farm Kasteel 231-JU in the jurisdiction of Bushbuckridge Local Municipality in the Ehlanzeni District of Mpumalanga Province.

Based on the findings of the investigations carried out by Naledzi and the specialists, we find that the potential environmental impacts associated with project are low to negligible and can be limited to acceptable levels with the implementation of the EMPr. It is recommended and emphasised that the mitigatory measures set out be always adhered to minimise any threats to the environment and limit any nuisance impacts that may raise complaints from surrounding residents or communities.

All the necessary permits and consents as detailed in section 5.2 must be secured before the roll-out of construction activities may commence. DFFE must be given a fourteen (14) day written notice before construction starts. At the same time, notice must also be given to the MDARDLEA and IUCMA (catchment management agency) including the Bushbuckridge Local Municipality and affected traditional authorities (via email/in writing).

SIGN OFF BY ENVIRONMENTAL ASSESSMENT PRACTITIONER

This EMPr has been compiled by Naledzi Environmental Consultants Pty Ltd.

Naledzi Environmental Consultants (Pty) Ltd
141 Thabo Mbeki Street
Polokwane, 0700
www.naledzi.co.za

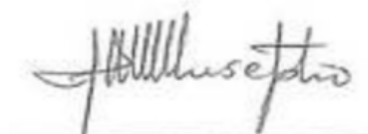
Contact number: +2783-410-1477 / +2784-226-5584
Email: botham@naledzi.co.za / dmusetsho@naledzi.co.za

Author:



.....
Marissa Ilse Botha
Senior Environmental Scientist
SACNASP Registered

Peer review and sign-off:



.....
Prof. Khangwelo Desmond Musetsho
Managing Director
SACNASP and EAPASA Registered
Registered EAP