

## Bushbuckridge Local Municipality Site Inspection

### RE: BASIC ASSESSMENT (BA) PROCESS FOR THE PROPOSED CASTEEL DAM SAFETY REHABILITATION PROJECT, FARM KASTEEL 231-KU, BUSHBUCKRIDGE LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

<b>Project name</b>	Casteel Dam Safety Rehabilitation Project
<b>Date &amp; Time Meeting</b>	25 October 2022, 14:30 – 15:30
<b>Venue</b>	At Casteel Dam (onsite)
<b>Chairperson</b>	Marissa Botha, Naledzi Environmental Consultants (Pty) Ltd (Naledzi) and Rodney Siwelane (DWS:SIAM)
<b>Attendees</b>	Please refer to the attached <b>signed attendance register</b> under <b>Annexure A</b> .
<b>Apologies</b>	None received.
<b>Contents of Minutes</b>	<p>No specific discussions took place. The Bushbuckridge Local Municipality, Environmental Section was showed the Casteel Dam site including the location of the proposed rehabilitation works, access intersection to the upgraded and temporary site camp area.</p> <p>Mr Rodney Siwelane explained the scope of works, location of works and proposed project schedule.</p> <p>A short discussion text is included and the photographic proof of the site inspection.</p>

## 1. DISCUSSIONS

<b>1.1</b>	<b>Background and Scope of Works</b>
<p>M Botha welcomed the attendees and introductions followed. The attendance register was signed.</p> <p>R Siwelane (DWS) explained that the DWS, Directorate: SIAM conducts Dam Safety Evaluations (DSE) every five (5) years in terms of the Dam Safety Regulation (GN R 139, 24 February 2012) at all departmental dams. Any safety risks identified at these dams are placed on the Dam Safety Rehabilitation Programme (DSRP) for repair. The latest DSE conducted at Casteel dam identified several safety risks and have been placed on the DSRP for scheduled rehabilitation i.e.</p> <ul style="list-style-type: none"> <li>▪ The slope on the downstream embankment is unstable;</li> <li>▪ There is an eroded gully downstream in the spillway channel;</li> <li>▪ The outlet works are non-functional;</li> <li>▪ The dam is freely discharging from the spillway to the river;</li> <li>▪ The spillway capacity is inadequate and requires the dam embankment to be raised.</li> </ul> <p>The project scope of works would include three components (refer to Figure 1 overleaf) i.e.</p> <ul style="list-style-type: none"> <li>▪ 28 500m<sup>2</sup> (2.85 Ha) rehabilitation works at the main dam embankment, spillway section and outlet works.</li> <li>▪ 0.9 Ha Site establishment area north-east of the dam.</li> <li>▪ Upgrading and realignment of the existing gravel access road from the R40 to the dam embankment. An existing access road through Casteel will be used to access the spillway section during the rehabilitation works.</li> </ul>	



**Figure 1: Proposed Casteel Dam rehabilitation works, site establishment area and access roads superimposed on Google Earth Satellite imagery.**

Mr Rodney Siwelane (DWS: SIA) started the site inspection at the Casteel Dam access road intersection with the R40. It was explained that the access road would be upgraded and realigned to be 6 meters (wide) and extend from the R40 to the toe of the dam (250 meters). It would be realigned to a 90 degree angle with the R40 to make the intersection with the R40 safer.

The temporary site camp of 0.9ha would be established west of the R40 and existing gravel access road. The site establishment area comprises degraded shrubland that would need to be cleared to accommodate the site offices and construction material stockpiles.

The attendees moved south toward the dam embankment where it was outlined that the DWS would remove all reeds and vegetation on the spill approach channel and upstream slope along the dam embankment 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 (rocks).

The dam outlet works would be repaired and the intake tower expanded from 1.5m x 1.5m to 5m x 5m. A concrete intake tower bridge would be provided and a temporary coffer dam will be constructed around the tower to create a safe working space.

It rest of the rehabilitation components were highlighted as tabled below.

No	Component	Proposed works
<p><b>The rehabilitation works at the main dam embankment will include:</b></p> <ul style="list-style-type: none"> <li>• 10 000m<sup>2</sup> works on a spillway section and embankment;</li> <li>• 10 000m<sup>2</sup> works on main embankment;</li> <li>• 500m<sup>2</sup> works on pipe trenches;</li> <li>• 8000m<sup>2</sup> access to wall.</li> </ul>		
	<b>Raising of non-overspill crest</b>	<ol style="list-style-type: none"> <li>1) Raise the embankment crest by 2 meters (from 604 to 606 mabsl) by constructing a 2.15m high concrete parapet wall with a 1.2m wide base on NoC;</li> <li>2) Raise the existing concrete wall on the right flank (next to the spillway) to the new NoC level.</li> </ol>
	<b>Stabilisation of downstream slope</b>	<ul style="list-style-type: none"> <li>• Flatten the slope to 1:2.5 by adding earth fill</li> <li>• Widen embankment crest from 4-5m by adding layers of material on the downstream side.</li> <li>• Protect downstream slope by adding a gravel layer</li> </ul>
	<b>Spillway channel</b>	<ul style="list-style-type: none"> <li>• Slope channel (right and left flank) to 1:0.75;</li> <li>• Line both sides of spillway using Amoflex / Geocell (i.e. erosion protection) ;</li> <li>• Construct a new training wall raised to 605.5 mabsl (existing wall foundation to be demolished).</li> </ul>
	<b>Embankment drainage and filter system</b>	<ul style="list-style-type: none"> <li>• Construct an inclined chimney drain and a toe drain to control dam wall seepage;</li> <li>• Two 160mm perforated collector pipes (embedded in 19mm stone) will discharge collected seepage;</li> <li>• A V-notch will be used to monitor seepage;</li> <li>• Existing 3 x 250mm pipes will be replaced with up to 1000mm pipes.</li> </ul>
<p><b>Construction of a paved walkway on the dam crest.</b></p>		
<p><b>Construction material:</b> All the materials required for the rehabilitation works will be sourced from a licensed commercial quarry/crusher.</p>		
<p><b>Workforce:</b> The rehabilitation works will be carried out by the DWS Chief Directorate: Construction Management. Skilled labour for the project will therefore be provided by the DWS and unskilled labour will be sourced from the local communities.</p>		

There is also a significant donga downstream of the dam spillway section that needs to be rehabilitated. The water fro the spillway would be calmed by putting a concrete wall and stepped spillway to the bottom of the donga. Stone/large boulders would be dumped in the donga. The donga is a public safety issue. An alternative access road through Casteel settlement will be used to access the spillway section of the dam.

## 1.2 Project Schedule

Phase	Time Frame	Period
BA process	18 months	Done by <b>Nov 2023</b>
Contractor Procurement	6 months	Dec 2023 to <b>May 2024</b>
Construction Period	24 months	June <b>2024</b> to <b>May 2026</b>

<b>1.3</b>	<b>Way Forward and Closure</b>
	<p>The BLM Environmental Management delegates confirmed that they had no initial inputs however wuld submit official comment once the draft Basic Assessment Report and Environmental Management Programme is available for public review and comment in January 2023.</p> <p>It was requested that the signed attendance register be made available attendees.</p> <p>Participants were thanked for attendance and the site visit was adjourned.</p>

**2. PHOTOGRAPHIC PROOF OF SITE INSPECTION**



**Figure 2: Delegates from DWS, Naledzi and Bushbuckridge Local Municipality (Environmental Management Section) attending the 25 October 2022 Casteel Dam site inspection. In the photo the delegates are standing at the R40 Casteel Dam access intersection. From left to right is Rodney Siwelane (DWS), Thendo Matsenene (Naledzi), Amos Msimango (DWS Inyaka Dam), Vincent Maleb (community member), Ntwanano Ndlovu (BLM, Env), Charity Mkhonto (BLM Env) and Jethro Monareng (far right from DWS, Stakeholder Management).**



**Figure 3: Delegates inspecting the Casteel Dam embankment heading towards the intake tower.**



**Figure 4: Delegates inspecting the spillway section of Casteel Dam.**



**Figure 5: Delegates inspecting the large donga below the spillway of Casteel Dam.**

**Attachments:**

**Annexure A- Signed attendance register**

**ATTENDANCE REGISTER –**





**SITE INSPECTION WITH BUSHBUCKRIDGE LOCAL MUNICIPALITY**

**PROPOSED CASTEEL DAM SAFETY REHABILITATION PROJECT, BUSHBUCKRIDGE AREA, MPUMALANGA PROVINCE**

**DATE: TUESDAY, 25 OCTOBER 2022**

**TIME: 14:30 – 15:30**

**VENUE: CASTEEL DAM**

NAME	ORGANISATION	ADDRESS	PHONE	SIGNATURE
MARISSA BOTHA	NALEDZI ENVIRONMENTAL CONSULTANTS (EAP)	Address: 112, The office park Area: Schermans Str, Polokwane Email: botham@naledzi.co.za	084-226-5584	
Matsenehe Tendo	NALEDZI Environmental consultants			
Abednigo Mboweni	DWS (Mbombela) (INJALA DAM (DWS))			
Msimmanco Amos	INJALA Dam DWS			



NAME	ORGANISATION	ADDRESS	PHONE	SIGNATURE
Jethro Mowang	DWS	[REDACTED]	[REDACTED]	[Signature]
Steen Mkhosini	DWS	[REDACTED]	[REDACTED]	[Signature]
Rodney SWEKANI	DWS	[REDACTED]	[REDACTED]	[Signature]
Malene Virena	Community	[REDACTED]	[REDACTED]	[Signature]
Ntwarano Ndlovu	BLM-ENV	[REDACTED]	[REDACTED]	[Signature]
Charity Mkhonto	BLM-ENV Management	[REDACTED]	[REDACTED]	[Signature]