

SANRAL RRM WORKSHOP

STRUCTURAL SAFETY INSPECTIONS

18TH FEBRUARY 2020

SESSION 3 - PRACTICAL EXAMPLES



EXAMPLE 2: MAJOR CULVERT STRUCTURE

The Phongola Dam Tributary Major Culvert is located in the KwaZulu Natal Province on the National Route N2, Section 31 at km52.00. For this example, you are required to complete a Safety Inspection Sheet and Summary Sheet using the information and photograph log provided below.

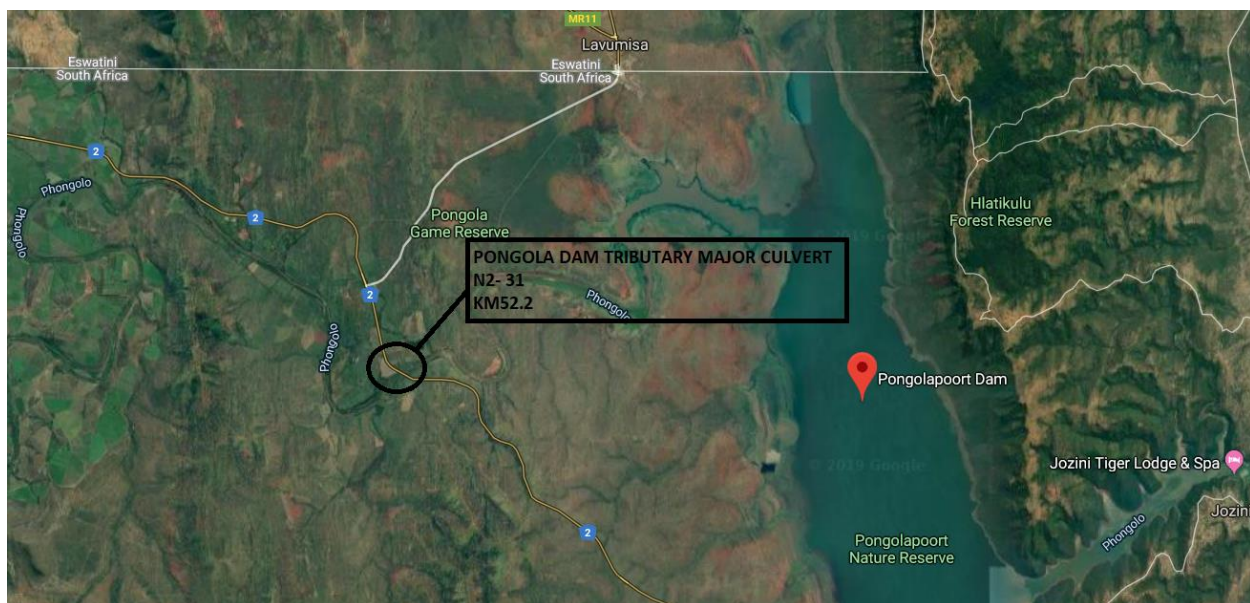



Figure 1.1 Locality of Droer River Bridge

<u>Type of structure:</u>	Reinforced Concrete (Box)
<u>Number of barrels:</u>	1
<u>Start Longitude:</u>	33d 46m 25.2s
<u>Start Latitude:</u>	27d 45m 31.2s
<u>End Longitude:</u>	33d 46m 33.5s
<u>End Latitude:</u>	27d 48m 20.5s

PHOTOGRAPH LOG : INVENTORY

<p><i>Road Above Culvert View 1</i></p>  A photograph showing a two-lane asphalt road stretching into the distance under a clear blue sky. The road is flanked by green trees and vegetation. A white dashed line runs down the center of the road.	<p><u><i>Insert Picture Reference:</i></u></p> <p><u>P01</u></p>
<p><i>Road Above Culvert View 2</i></p>  A photograph of a road similar to the first, but with a car visible on the left side. The road curves slightly to the right in the distance. The sky is clear and blue.	<p><u><i>Insert Picture Reference:</i></u></p> <p><u>P02</u></p>
<p><i>Inlet</i></p>  A photograph of the inlet of a culvert. It shows a concrete structure with a rectangular opening, surrounded by dry grass and dirt. A road with a guardrail is visible above the culvert.	<p><u><i>Insert Picture Reference:</i></u></p> <p><u>P03</u></p>
<p><i>Outlet</i></p>  A photograph of the outlet of a culvert. It shows a concrete structure with a rectangular opening, surrounded by dry grass and dirt. A road with a guardrail is visible above the culvert.	<p><u><i>Insert Picture Reference:</i></u></p> <p><u>P04</u></p>
<p><i>Culvert Number</i></p>  A close-up photograph of a metal plate with the text "C838" and "2012" stamped on it.	<p><u><i>Insert Picture Reference:</i></u></p> <p><u>P05</u></p>

PHOTOGRAPH LOG : OBSERVED DEFECTS

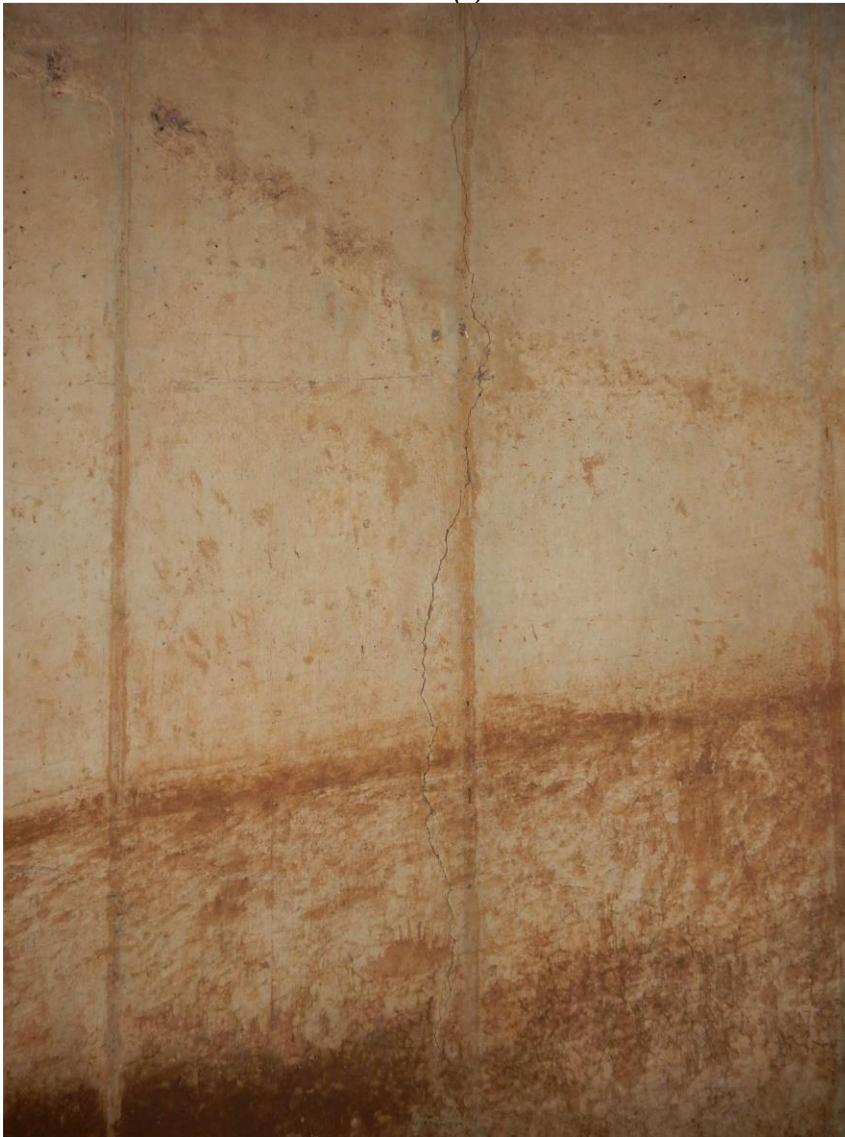
Outlet works



Insert Picture Reference:

P11

Barrel(s)



Insert Picture Reference:

P12

Barrel(s)



Insert Picture Reference:

P13

Retaining wall Southern Approach



Insert Picture Reference:

P14

EXAMPLE 1: SAFETY SHEET

SANRAL		EDMS # 4578657/6	SAFETY INSPECTION FORM i.t.o. Occupational Health and Safety Act (1993) and Construction Regulations (2014)				CULVERTS (Major and Lessor)												
Route	N2	Section	31				Road km	52											
Structure No.	C383	Start Latitude (south)	2	7	4	5	3	1	.	2	Start Longitude (east)	3	3	4	6	2	5	.	2
No of cells	1	End Latitude (south)	2	7	4	8	2	0	.	5	End Longitude (east)	3	3	4	6	3	3	.	5
Structure Name	Phongola Dam Tributary Major Culvert																		
<p>The purpose of this Safety Inspection, to be undertaken by a competent person, is to identify safety related defects that require urgent attention to ensure the structure is safe for continued use. It is not required to record routine maintenance defects. These inspections are to be captured and hard copy and electronic records kept. Data shall also be captured in SANRAL ITIS system. For existing structures inspections shall at 12 months maximum intervals. For new structures they shall be done every 6 months for the first 24 months and at 12 months maximum intervals thereafter.</p>																			
INSPECTION (mark with an X as applicable for Defect and Degree)																			
Item	Description	Defect?			Degree Rating				Photo No's.										
		Yes	No	N/A	1	2	3	4											
1	Inlet works		X																
2	Outlet works	X					X		P11										
3	Barrel(s)	X			X				P12,P13										
4	Waterway		X																
5	Embankments		X																
6	Retaining walls	X						X	P14										
7	Flood damage?		X																
8	Impact damage?		X																
9	Other defects?		X																
10																			
PHOTOGRAPHS																			
Photo No.	Inventory Description	Photo No.	Location	Defect Description															
P01	Road above culvert View 1	P11	Outlet	Severe scoring at outlet. Undermining of apron slab.															
P02	Road above culvert View 2	P12	Barrel	Cracks in culvert barrel															
P03	Inlet	P13	Barrel	Cracks in culvert barrel															
P04	Outlet	P14	Retaining Wall	Rotation/Movement of culvert retaining walls.															
P05	Culvert number	P15																	
P06		P16																	
P07		P17																	
P08		P18																	
P09		P19																	
P10		P20																	
Urgent Action or Attention required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	If Yes, Urgency?	Immediate <input type="checkbox"/>	Within 2 months <input type="checkbox"/>	Within 6 months <input checked="" type="checkbox"/>													
If Yes, specify details:	Scouring at outlet of structure under apron slab and rotation of culvert retaining wall.																		
Inspector's comments: Significant defects noted that can compromise the structure and road user safety.																			
Inspected by	A. Man			Date	10/1/2019														
Signature				Firm	A. Company														
Degree Rating Description	No Defect	0	Minor	1	Moderate	2	Warning	3	Severe	4									

EXAMPLE 2: SUMMARY SHEET

[illegible]