BACKGROUND INFORMATION DOCUMENT FOR THE PROPOSED REPLACEMENT OF THE DECK OF THE BRIDGE OVER THE MKHONDENI RIVER BRIDGE

1. INTRODUCTION

Terratest (Pty) Ltd was approached by Mr Selwyn Naidu on behalf of the KwaZulu-Natal Department of Transport to undertake the environmental work necessary for the application for environmental authorisation (EA) from the Department of Agriculture and Environmental Affairs (DAEA) for the proposed activity. The EA is necessary since the activity falls with in the listing notice GN No R. 386.

Locality Map

2. BACKGROUND INFORMATION

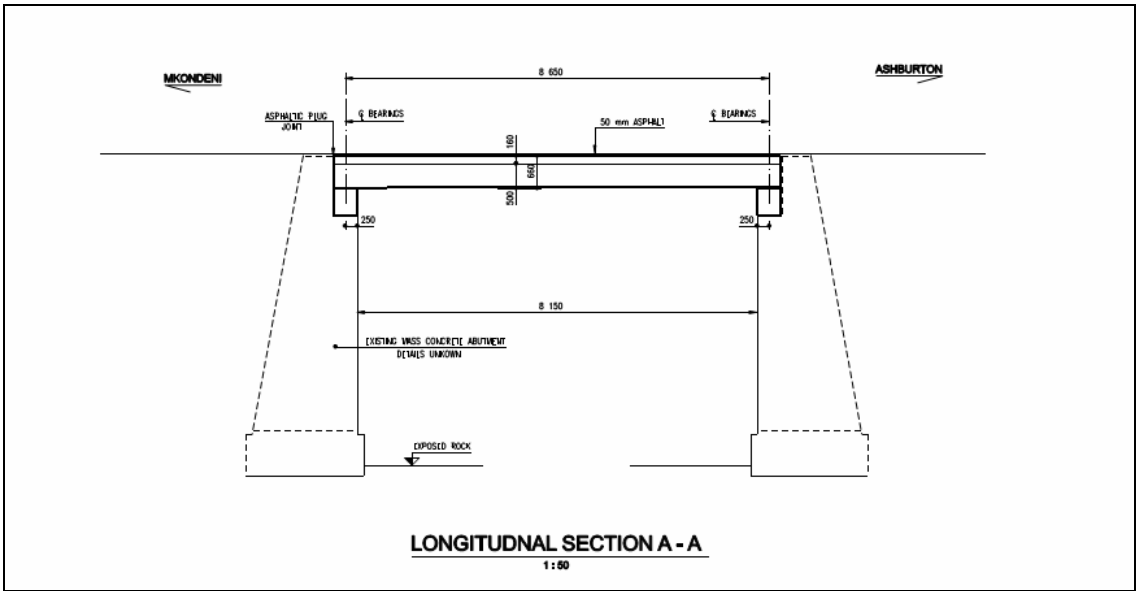
The provincial road P1-5 (R103) is part of the old main road between Pietermaritzburg and Durban. The bridge over the Mkhondeni River (Bridge No 31) is on this provincial road P1-5 and is at the foot of the notorious “Polly Shorts” Hill and is approximately 1.4km north of Ashburton residential area and 2km south of the Cleland residential area. This section of the old main road is of strategic importance as it is the only alternative route to the N3 between Pietermaritzburg and Durban.

View of the "Polly Shorts" hill from the Mkhondeni River Bridge looking towards Pietermaritzburg

3. PROJECT DESCRIPTION

The existing bridge is a single span simply supported steel beam and concrete slab deck supported on mass concrete abutments. The bridge was constructed in 1927 and appears to have been widened at some stage. The clear width and height of the opening are 8.15m and 5.3m respectively. The existing carriageway over the bridge is 8.5m wide with a lane width of 3.25m and raised walkway of 1m in each direction.

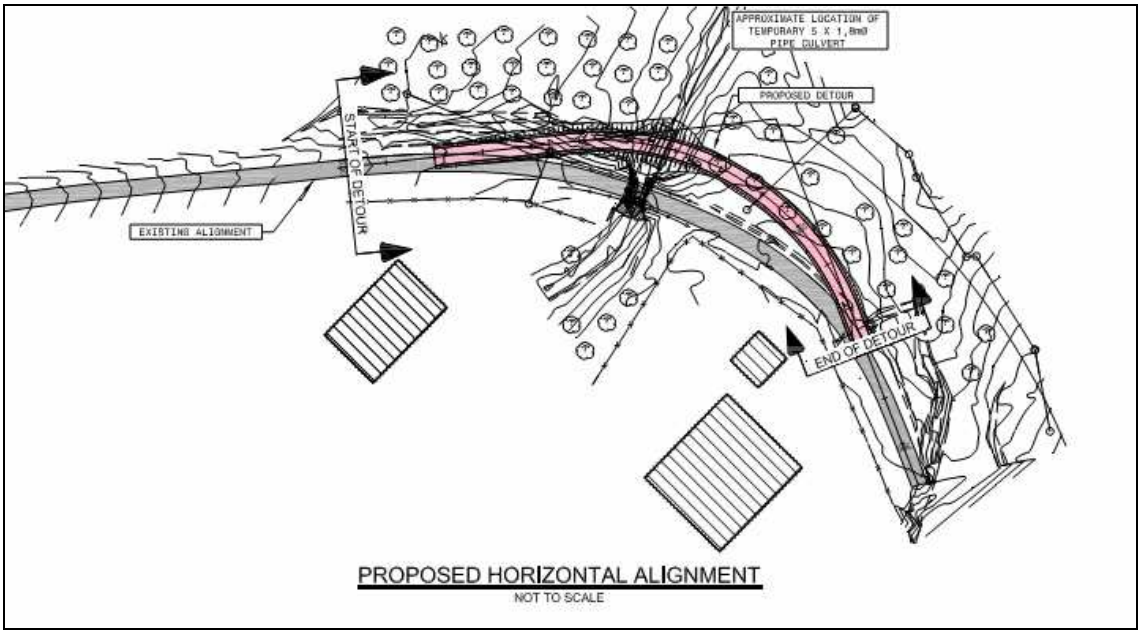
The existing abutments have been in service for over 80 years and are showing no signs of distress. In consultation with the KwaZulu-Natal Department of Transport (DOT), it was therefore proposed to accept that the existing abutments are adequate for the current load conditions. For the deck replacement option, the existing abutments will be deemed to be adequate provided the loads from the new deck are not significantly different to the existing deck.



Longitudinal section of the proposed deck replacement

View of the current bridge structure, abutments and decking

In order to replace the existing deck, it will be necessary to construct a detour as it is not considered feasible to replace the deck in half-widths or to close the road for any considerable period of time, due to the strategic importance of the road.



View of the alignment of the proposed detour

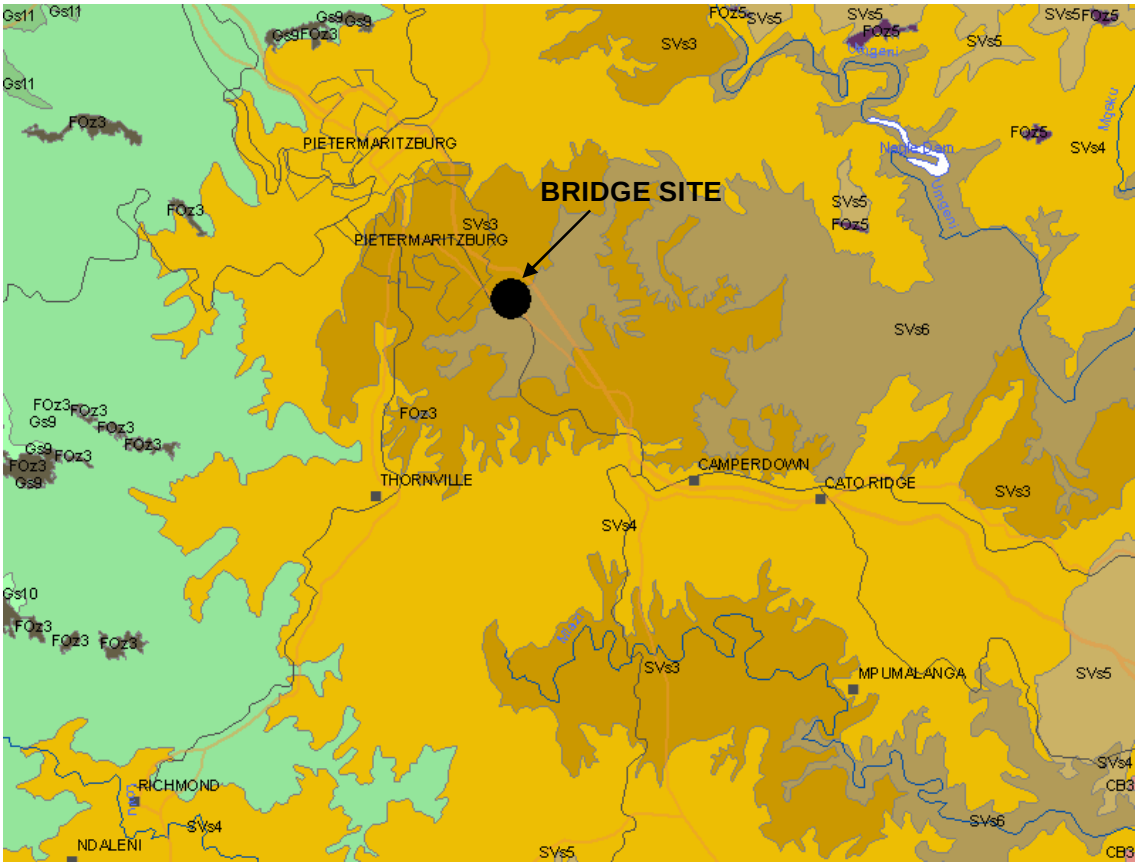
The design criteria adopted for the alignment of the detour of the P1-5 is the Technical Recommendations for Highways 17 (TRH 17 - Recommendations for Rural Roads) geometric design standards. The width of this temporary detour is 9.0m with a lane width of 3.5m and an un-surfaced shoulder of 1m in each direction with a camber of 2%. The total length of the detour is approximately 220m.

The design speed of the existing road is 60km/h. However, the proposed alignment does not meet the design criteria for a 60km/h design speed. In order to improve safety and also to minimize the cost of construction, in particular the earthworks volume, it is proposed that the design speed be reduced to 50km/h for the length of the detour. The minimum requirements in terms of the TRH 17 are a radius of 80m with a minimum curve length of 150m. The minimum design stopping distance required for this road is 65m. In the alignment of this detour for the P1-5 these minimum criteria will be satisfied.

The proposed carriageway width for the deck replacement will need to be the same as the existing bridge in order to retain the existing mass concrete abutments. The existing carriageway over the bridge is 8.5m wide with a lane width of 3.25m and raised walkway of 1m in each direction. The proposed deck is a pre-cast beam and slab deck. The bridge deck will be supported on elastometric bearings at the abutments. The expansion joints at the abutments will consist of asphaltic plug type joints. The bridge deck will have open F-shape parapets, with service ducts.

4. BIOPHYSICAL ENVIRONMENT

According to the Vegetation Types of South Africa, Lesotho and Swaziland (2006) the site is situated within the Eastern Valley Bushveldt veldt type.



Map of the locality of the site within the Eastern Valley Bushveldt veldtype.

This veldtype has a conservation status of "least threatened" and is characterised by semi-deciduous savannah woodlands in a mosaic with tickets, often succulents dominated by species of *Euphorbia* and *Aloe*. The Mkhondeni River runs along a northwest-southeast axis which results in unequal distribution of rainfall on the respective north-facing and south-facing slopes since the rain-bearing winds blow from the south. The implication of this orientation is that the north-facing slope of the valley has vegetation that is typical of drier conditions compared to the south-facing slope. In addition the south-facing slope has a substantial infestation of alien invaders due to the higher relative moisture content of the soils.

5. SOCIAL ENVIRONMENT

The project site is along the P1-5 provincial road (old Durban Road) between Pietermaritzburg and Ashburton and serves as the alternative route to the Durban. In this regard the road is of great socio-economic importance due to the high number of heavy vehicle traffic on the N3, if the

N3 should be blocked by whatever means (accident etc) the P1-5 will serve as an alternative route. The immediate area surrounding the project site consists of small holdings zoned for agricultural use. Both sides of the bridge falls within the Msunduzi Local Municipality and is managed and serviced by this Municipality.

6. HOW DO I PARTICIPATE?

Every proposed project and/or development has the potential to significantly affect the natural and social environments, both at, as well as surrounding the proposed site. For this reason it is imperative that you as an interested and/or affected party (I&AP) comment on the proposed development and highlight issues or concerns that you feel need to be considered during the proposed planning and implementation process. This can be done by contacting the environmental consultant (details given below) who will register you as an I&AP. If you intend to register as an I&AP or forward comments regarding the proposed development, please submit your contribution to Terratest before **9 May 2008.**

7. CONTACT PERSON AT TERRATEST

Please forward any comments on the proposed development to:

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