N21 (R300) CAPE TOWN RING ROAD PROJECT:

AMPHIBIANS AND REPTILES

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NEW NORTHERN ALIGNMENT PROPOSAL – "THE FARMER'S ALTERNATIVE"

A total of 8 amphibians and 24 reptiles (15 snakes, 7 lizards, 1 land tortoise, 1 terrapin) have either been recorded or are likely to occur in this area. However, the proposed route alignment passes through a modified landscape where there is no remaining natural veld and over 80% of the area is under cultivation. This has generally had a negative effect on amphibians and reptiles by causing habitat loss and degradation, fragmented populations, reduced population numbers and densities, and the loss of certain species. Furthermore, the species in this area have relatively wide distribution ranges which extend beyond a 100 kilometre radius of the proposed "farmer's alternative" alignment. Consequently this area does not form a significant part of the respective distribution areas of these species and is of little importance in terms of their overall conservation. Nevertheless, the impact of the proposed road on local populations of these species needs to be assessed.

Threatened species and/or habitats/localities: Although there is a breeding site of the threatened Cape caco frog, *Cacosternum capense*, on Spes Bona farm, no threatened species, habitats or localities are known to be in the area of the proposed "farmer's alternative" alignment.

Assessment of road alignment alternatives B1 and B2: In terms of the impact of the road development on amphibians and reptiles, it does not matter which of the three proposed road alignments (farmer's alternative, B1 or B2) is chosen.

The anticipated impacts are:

- Road creating a barrier/hazard to species movement
- Quality of road reserve habitat after construction

Mitigation

Design:

No solid wall type barrier should be constructed alongside the road such as the one in the middle of the double carriageway along the N2 between Cape Town and Khayelitsha. A solid concrete barrier restricts the movement of terrestrial animal life thus fragmenting and isolating populations.

Road reserves should be wide enough to allow for a wildlife sanctuary area which will not be destroyed by future road widening projects. In an urban environment, road

reserves can provide important sanctuary areas for wildlife and also serve as corridor areas for the movement of terrestrial animals linking them to more important conservation areas. For some species in the "farmer's alternative" area, the road reserve could potentially provide better habitat than the surrounding cultivated lands.

Consideration should be given to the installation of culverts (tunnels under the road) to promote the interaction of terrestrial animal populations on either side of the road and to help reduce road casualties. This is particularly recommended where there are natural habitats and noteworthy wetlands. Admittedly, though, these are hardly noticeable in the "farmer's alternative" area. The design and placement of the culverts would need to be discussed with the road engineers – but they should be more than 500 millimetres in diameter and, preferably, as many as possible should be installed. Sections of road raised off the ground on supports in the form of flyover bridges (*e.g.* over the Diep River) would also allow for the movement of terrestrial animals.

With regard to amphibians and reptiles, there are no special recommendations concerning the design and construction of a flyover bridge over the Diep River.

Construction:

Road construction can lead to the filling in or drainage of wetland sites and the general alteration of water tables and drainage patterns. However, wetlands should be conserved as far as possible as they are a rich source of biodiversity with many species being dependant on them. Furthermore, some species of frogs, for example, only breed in permanent water bodies whereas others are dependant on seasonal wetlands. Consequently, the water tables of wetlands that are retained should not be altered.

During the road construction phase, the top soil should be stored and then used, where necessary, for the rehabilitation of the road reserve after road construction.

Operation:

The road reserve must be suitably landscaped and rehabilitated (with indigenous vegetation) following on road construction, and any wetland areas should be maintained and not filled in or drained. This will help encourage recolonization by reptiles and amphibians.

Assessment: Road creating a barrier/hazard to species movement

Impact Assessment Criteria							
	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Without Mitigation							
With Mitigation	M	M-H	L-M	**Negative**	M	M	H

Assessment: Quality of road reserve habitat after road construction

Impact Assessment Criteria							
	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Without Mitigation							
With Mitigation	L-M	M-H	L-M	**Negative**	L-M	L-M	H