

**IMPACT ASSESSMENT (MAMMALS) OF THE "FARMERS
ALTERNATIVE" ROUTING OF THE SECTOR 3: SECTION 7
PORTION OF THE PROPOSED N21 (R300) CAPE TOWN RING
ROAD PROJECT**

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INTRODUCTION

The terms of reference for this specialist study (adapted from the original TOR) are to:

- Identify areas and habitats significant to the conservation of mammal species of special interest as identified from the scoping report as well as from additional evaluation of the proposed project,
- Make recommendations towards avoiding or mitigation of potential impacts, whether related to route alignment, road construction or operations, including recommendations regarding post construction rehabilitation,
- Do a field and desktop assessment of any impacts that may be identified, without and with proposed avoidance/mitigation measures, using the assessment method provided,
- Assess the road design to ensure implementation of recommendations or concerns. This would be in the form of both desktop assessment and a workshop with the engineers and other specialists,
- Provide a detailed description of construction phase mitigation requirements/recommendations and rehabilitation requirements for inclusion into the construction phase management plan.

This short report deals with the alternative routing for Sector 3: Highway Section 7, known as the "Farmer's alternative" as well as two alternative routings in the vicinity of the farm Phesantekraal, known as Alternative B1 and B2.

This report should be seen as supplementary to the report titled "R300 Extension/N21 Cape Town ring road toll project – environmental impact assessment – mammals" and read in conjunction with said report.

SECTOR 3: HIGHWAY SECTION 7 (FARMER'S ALTERNATIVE)

The alternative routing for the sector of the proposed N21 (R300), from Wellington Road to the N7/Vissershok Interchange was visited on 18 and 28 August 2003. Although the alternative routing is slightly longer than the original routing, it passes almost entirely through an area extensively converted to agriculture and will have less effect on natural habitats than the original alignment.

The crossing of wetlands is also considerably less in extent than that of the original routing and from this perspective the "farmer's alternative" routing will also have less impact than the original route.

Species and habitats

The most important habitat for mammals in this section is some remnants of renosterveld still remaining at Km 8 & 9 and the crossing of the Diep River at Km 6. Some species of small mammals have however adapted to the agriculturally converted habitats and species expected to occur in the immediate vicinity of the route, are:

Cape golden mole	<i>Chrysochloris asiatica</i>
Round eared elephant shrew	<i>Macroscelides proboscideus</i>
Various bat species	Order: <i>Chiroptera</i> *
Cape hare	<i>Lepus capensis</i> *
Cape dune mole-rat	<i>Bathyergus suillus</i>
Common mole-rat	<i>Cryptomys hottentotus</i>
Cape mole-rat	<i>Georynchus capensis</i> *
Porcupine	<i>Hystrix africaeaustralis</i> *
Vlei rat	<i>Otomys irroratus</i> *
Striped mouse	<i>Rhabdomys pumilio</i> *
House mouse	<i>Mus musculus</i> *
Pygmy mouse	<i>Mus minutoides</i> *
House rat	<i>Rattus rattus</i>
Brown rat	<i>Rattus norvegicus</i>
Cape gerbil	<i>Tatera afra</i> *
African wild cat	<i>Felis lybica</i>
Caracal	<i>Felis caracal</i>
Cape fox	<i>Vulpes chama</i> *
Black backed jackal	<i>Canis mesomelas</i>
Bat-eared fox	<i>Otocyon megalotis</i>
Striped weasel	<i>Poecilogale albinucha</i>
Striped polecat	<i>Ictonyx striatus</i> *
Small grey mongoose	<i>Galarella pulverulenta</i> *
Egyptian mongoose	<i>Herpestes ichneumon</i>
Water mongoose	<i>Atilax paludinosus</i> *
Rock dassie	<i>Procavia capensis</i> *
European fallow deer	<i>Cervus dama</i> *
Common duiker	<i>Sylvicapra grimmia</i> *
Grysbok	<i>Raphicerus melanotis</i> *
Steenbok	<i>Raphicerus campestris</i> *

* confirmed by observations and discussion with farmers

Expected impacts

Where the proposed road crosses ephemeral wetlands, populations of mammal species could be isolated as these wetland areas are expected to be the prime habitat for most species. The only wetland affected by the alternative route is the Diep River crossing, where the effect will be less than on the original routing as the length of the crossing is

considerably less. The same situation would occur where continuous patches of natural veld are bisected. Again this effect would be less than for the original routing as the proposed alternative routing only passes through the northern perimeter of small patches of natural vegetation at Km 8 and 9.

None of the mammal species expected to occur on this section of the proposed road are endangered, rare or scarce and most have adapted to the agricultural land use. No other impact of any significance is foreseen for this section of the proposed road.

Significance of impacts

- (a) The extent of impacts is expected to be local within site boundary **(L)**
- (b) The duration of impacts is expected to be quickly reversible **(L)**
- (c) The intensity of impacts is expected to cause only minor changes in species diversity **(L-)**
- (d) The probability of the impacts occurring would be low **(L)**
- (e) The expected impact will have a negative effect
- (f) The expected impacts will be of little consequence
- (g) The expected impacts will not be significant
- (h) It can be predicted with a high degree of confidence that the expected negative impacts will not have permanent negative effects
- (i) There are no specific legal or permit requirements relevant to this project.
- (j) The expected impacts of the proposed project are not likely to affect the project decision.

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	L	L-	Negative	L	H	L
With mitigation	L	L	L	Neutral	L	H	L

Mitigation (Specific)

- Provision should be made to allow underpass access to mammals where wetlands are traversed at the crossing of the Diep River. The design should allow for maximum width of such underpasses as is consistent with engineering constraints and a minimum height of about 3 meters should be maintained.
- Provision should be made in the design of the road shoulder at important wetland crossings to avoid any oil accumulations or hazardous material spills to end up in such wetlands. This pertains only to the Diep River crossing.
- The re-establishment of indigenous vegetation for rehabilitation of the road verges should be encouraged as this provides corridors to link disjointed patches of natural vegetation.
- Exotic vegetation and specifically invasive species should not be allowed for rehabilitation of road verges.
- Burning of the road verges to create patches of uneven aged vegetation should be promoted to allow for a mosaic of habitats to promote dispersal of the various species.

Mitigation (General)

These general mitigation measures, which appear in the original impact assessment for the entire road, should also apply to this section.

Design:

- Provision must be made to allow underpass access to mammals where wetlands are traversed or where continuous patches of natural vegetation are bisected. The design should allow for maximum width of such underpasses as is consistent with engineering constraints and minimum height of about 3 meters should be maintained
- Provision should be made in the design of the road shoulders at important wetland crossings to avoid any oil accumulation or hazardous material spills from ending up in such wetlands.
- Bridging rather than filling should be the preferred option in all cases where patches of natural vegetation are bisected or wetlands crossed.

Construction:

- In the construction phase, care should be taken to ensure that the area physically destroyed or damaged is kept to a minimum by fencing off the construction sites.
- Storage of sand, cement, fuel, tarmac and other hazardous material should be at predetermined sites where the danger of it leaching into watercourses can be kept at a minimum.
- The location of borrow pits and quarries should be selected to cause minimum environmental damage.
- An Environmental Site Officer should be appointed for the duration of the construction and rehabilitation phases of the project to ensure compliance with environmental prescriptions or recommendations.
- Regular environmental training should be given to construction workers during the construction phase to ensure that individuals of the various taxa affected are properly translocated and not killed.

Rehabilitation:

- The rehabilitation of the road verges should only be done with suitable indigenous plant species. A qualified horticulturist should advise on suitable species. Under no circumstances should invasive exotic species be used for this purpose.
- Where alien invasive plant species occur in the road reserve area it should be removed.
- No pesticides or herbicides should be used for controlling weeds or invertebrates in the road reserves. Burning of the road reserve in a mosaic pattern of uneven ages would provide the habitat diversity necessary to maintain the diversity of other taxa.

EVALUATION OF ALTERNATIVES B1 AND B2.

Both the alternatives B1 and B2 in the vicinity of the farm Phesantekraal will not have any detrimental effect on the small mammal populations likely to occur in the area. Both the alternative routings pass through extensively altered landscapes without any natural vegetation left.

The only mammal species expected to occur on these alternative routings are some small mammals adapted to the agriculturally converted landscapes, which will not in the long term be affected negatively by the proposed road.