

Alphabec

Att: To Whom it may concern

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DOORKRAAL VISGAT FARM GRAVEL ROAD UPGRADE: SUMMARY OF CONCEPT OPTIONS

This letter is to provide an overview and summary of the three options tabled for the Doornkraal Visgat farm gravel road upgrade.

1. INTRODUCTION

Doornkraal Visgat farm is an apple farm situated to the North of Prins-Alfred Hamlet, Western Cape, next to the Olifantsriver.

The gravel access road presents challenges to get the produce from the farm with interlink trucks due to the size of the road and mainly numerous sharp corners. This has a major effect on the productivity and profitability of the farm.

To address this, the owner of the farm proposes to upgrade the road to better suite the transportation of the harvest and increase the productivity of the farm.

The Olifantsriver is to the West of the existing road with some smaller streams to the East mouthing in the Olifantsriver. The road thus crosses a few streams.

The undisturbed vegetation surrounding the road is mostly Fynbos. The soil classification involves a lot of hard rock and boulders.



2. NEW ROUTE PROPOSED OPTIONS

Three proposed routes are proposed and summarized below. Also refer to drawings 2133WC-C-100 to 102.

The existing road will remain and used as alternative route when maintenance must be done, this will include the existing water crossings.

Replacement of the existing bridge

For all three options the major water crossing (bridge) over the Olifantsriver to the North of the existing road will be replaced. The existing bridge is in a poor condition and poses a major functional and safety risk. During the winter months when rain and/or snow fall have occurred the bridge floods rendering it inaccessible. This is seen as a major safety risk whilst continuous damage to the bridge will inevitably result in the bridge failing.

The replacement of the bridge will be done using pre-cast concrete culverts placed upstream of the existing one, founded on the river rock near or at the surface. The width of the new bridge will be in the range of 7.5m. To prevent the new bridge from flooding and allow access all year round the top of the bridge level will be raised by 500 to 750mm compared to the existing.

Using pre-cast elements to construct the bridge is considered the most environmentally friendly and economical solution. Minimal mixing and/or casting of concrete will be done during construction eliminating the possible impact on the surrounding undisturbed environment.

During construction careful attention will be given to prevent the river overflowing or damaging the undisturbed embankments.

General repairs to the existing road

Further to the rerouting of the existing road, maintenance and making good of the existing is also planned. This will involve repairing of existing water crossings, constructing more drainage systems diverting water away from the road surface (i.e. mitre drains) and adjusting some of the existing levels to minimize steep hills minimizing rutting.

Option 1

- Quantity of diversions – 4.
- Quantity of new water crossings – 2.
- Estimated total length of upgrade – 675m.

This option is considered as the least intrusive of the environment with only small sections rerouted, mainly where there are sharp corners restricted the movement of the transport vehicles.

The total length of new road sections required is the shortest of the three options resulting in the most economical option.

This option is based on the idea that most of the existing road will remain in use with minimal rerouting.

Option 2

- Quantity of diversions – 3.
- Quantity of new water crossings – 3.
- Estimated total length of upgrade – 1 325m.

This option is considered as the most intrusive of the environment with most of the existing road abandoned to create the most direct route to the farm.

The total length of new road sections required is the longest of the three options resulting in the least economical option. This involve significant earthwork to be done and importation of fill material to construct the road.

This option is based on the idea to create the most direct route greatly benefitting the transportation of goods.

Option 3

- Quantity of diversions – 2.
- Quantity of new water crossings – 4.
- Estimated total length of upgrade – 1 180m.

This option considered the benefits of both Options 1 and 2 – shortest route to for the transportation of goods, economical factor, and impact on the environment.

The total length of new road sections required is almost double that of Option 1, yet some 145m (11%) shorter than Option 2. The economical factor for this option is expected to be like that of Option 2.

This option will also involve significant earthwork to be done and importation of fill material to construct the road.

3. CONCLUSION

Option 1 will have the least amount of impact on the environment and is the shortest route and is the most economical solution of the three.

Options 2 and 3 will involve significant earthworks and importation of fill material with the greatest impact on the environment. These options are expected to have a similar economical impact and be significantly greater than Option 1.

Our recommendation is to proceed to detail design and construction of Option 1.

We trust this information will meet your requirements, but do not hesitate to contact us if any additional information is required.

Yours Sincerely,



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