

Enriching communities through reconstruction of minor roads

The citizens in the residential area of Ocean View in Cape Town are in urgent need of improvements to their road infrastructure. This can be done by providing sustainable solutions to current challenges, which will improve the living conditions of citizens in the long term, as well as create a safer environment.

BACKGROUND

Ocean View, in Cape Town, was established in 1968 as a township for Coloured people who had been forcibly removed from so-called 'white areas' such as Simon's Town, Noordhoek, Red Hill and Glencairn by the former apartheid government under the Group Areas Act.

The condition of the road infrastructure has deteriorated tremendously in recent years. This is most likely due to poor planning and design, and environmental factors which have all contributed to the roads reaching the end of their design life. The City of Cape Town has identified these circumstances as a high-priority problem that needs to be addressed.

PROJECT DESCRIPTION

A number of roads have been identified as in critical need of rehabilitation, and the first roads that have been redesigned as part

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of this major on-going programme are Daisy Circle, and Rhino and Cheetah Streets.

Each of these roads provided its own challenges, such as the need to provide carriageway crossings tying into current informal driveways, accommodating existing underground services, dealing with pedestrian movement and providing subsoil drainage. Each road has been designed with a structural design life of at least 30 years.

Major overall challenges encountered during the planning and design phase of all three roads include:

- Large quantities of clay restricting the flow of groundwater.
- The underlying clay layer creates a perched water table causing groundwater to surcharge, resulting in pavement layers becoming saturated and failing.
- Lack of existing stormwater channelisation, resulting in property flooding during the winter rain season.

- The narrow road reserve, a lack of formalised footways and verge parking compromise pedestrian safety, forcing pedestrians to walk in the road.
- Steep grades and resulting overland drainage.

Various fundamental engineering solutions have been used to solve these challenges. The provision of subsoil drainage is a very effective way of managing groundwater seepage and high water tables. A 400 mm sand layer is provided as a founding layer in the pavement structure, as well as subsoil *flo-drains* in both verges of the road reserve to drain groundwater and to keep the pavement structure dry. The function of the *flo-drain* on the low side of the road verge is to drain trapped water beneath the layer works, whereas that of the *flo-drain* on the high side is to drain the water before it enters the pavement layers. The pavement structure comprises 40 mm continuously-graded asphalt surfacing on a 150 mm G3 gravel base and a 400 mm sand sub-base layer.



Figure 1: Location of the redesigned street in Ocean View in Cape Town

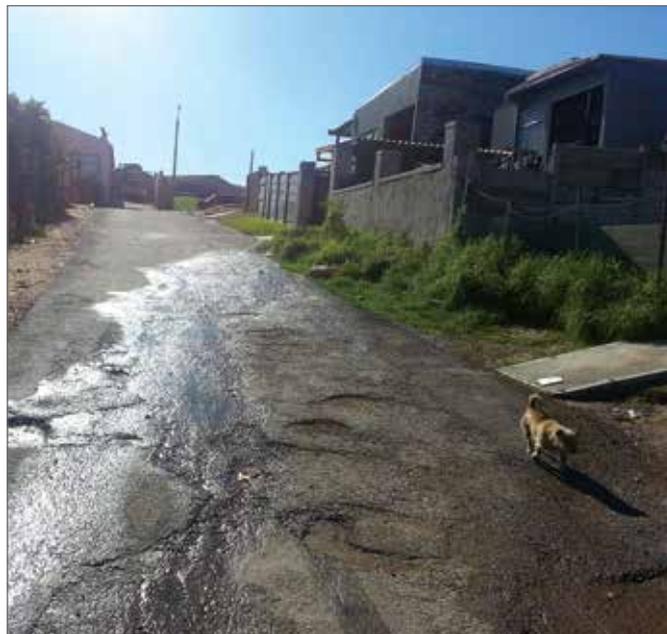


Figure 2: Surcharging of groundwater



Figure 3: Most pedestrians currently walk in the road

For Daisy Circle a herringbone subsoil drainage system is proposed, as no clay layer is present in this street.

Verge parking is a big problem as a result of the narrow road reserves. The use of barrier kerbs, together with a footway at least 1.2 m wide, will be provided to improve the general safety

of pedestrians. This will also control motorists' movements and reduce speeding.

Figures 5 and 6 show the proposed cross sections in each road, depending on ground conditions and available road reserves.



Figure 4: Verge parking by residents is a very common phenomenon

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PROJECT STATUS AND CONCLUSION

This project is due to go into construction soon and is the first phase of a bigger effort to improve the overall infrastructure of Ocean View. A large portion of the work will be carried out using

labour-intensive methods, utilising local labour. Providing the above-mentioned essential improvements to the community's road infrastructure will go a long way towards enriching the quality of Ocean View residents' lives. □

