



Lonerock Construction completed the bulk of the complex structural work ahead of the roadworks.

"CoreSlab can be commended for its willingness to accommodate us every step of the way, starting with the design and generation of a method statement of the manufacturing process. The company was also appointed to undertake the installation of the precast concrete beams once the bearings had been installed on the abutments. This is considering that it is also a specialised process that demands absolute precision to avoid deflections during the lifting of the beams and after they have been placed," Phetla says.

The design of the foundations of the bridge also had to be modified by Ubona Engineers considering that the terrain is overlain by rocks and large boulders.

A decision was taken to anchor the foundations of the bases of the abutments into the large boulders as opposed to removing them by drilling and blasting.

"Mass concrete was cast over the boulders and we then drilled through them to insert the dowels. This approach provided some cost savings for our client considering that up to 45 000 m³ of rock had to be removed by drilling and blasting during the earthworks stages of the construction of the road. It also mitigated any delays as we decided to first prioritise the completion of the two large structures before working on the road," Myoya says.

Some of this material was crushed and used in the layer works of sections of the roads and in the foundations of the large cast in-situ three-barrel culvert.

These challenging ground conditions were compounded by the perched water table in many areas along the route.

Affected areas were excavated and then filled with crushed rock that was covered with a geotextile, before work commenced on the layer works.

The road comprises a bedding layer compacted to 93% AASHTO density; selected layers compacted to 95% AASHTO density; and a C3 base course compacted to 98% AASHTO density. The road will then be primed and sealed with 13,2 mm and 6,7 mm thick bitumen layers.

Quality G6 material for the sub-base layers was sourced on site from the various cuttings and the remaining material from two borrow pits that were opened specifically for this project.

In terms of the stabilisation of the sub-base layers, the pockets of cement supplied to site were unpacked and spread by hand to ensure accuracy and to provide further work opportunities for members of the community.

Phetla and Myoya note that meticulous attention also had to be paid to the implementation of the design of the water control and drainage systems considering the high rainfall experienced in this area.

More than 20 precast concrete culverts were installed at the various crossings along the route as part of this aspect of the works programme.

They are both looking forward to handing over this quality infrastructure to the community members, who have struggled for many years with gravel roads that required extensive maintenance especially after heavy rains.

They are also already benefiting from the boreholes that were installed by the contractor with the help of the municipality to support the construction operations.

Jaco de Bruin, managing director of CoreCivils, says that he is proud of the company's involvement in a project that has already had such a profound positive impact on lives of so many people in a very impoverished area of the country. ▲

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