

# Connecting outlying Sekhukhune District to major urban nodes

*The Roads Agency Limpopo (RAL) is forging ahead with the construction of a new road that will connect three villages in the mainly rural Sekhukhune District Municipality to two provincial roads, including the D1547 that is administered by the South African National Roads Agency Limited.*

**W**hen completed in September 2019, the new 13-km single carriageway will provide citizens of Mmotwaneng, Legonaneng and Luckau with quick access to major urban centres in Limpopo and Mpumalanga.

Notably, many small businesses in these villages, among them emerging farmers, will also benefit from the new infrastructure by being able to expand into new markets.

Meanwhile, numerous local small businesses have already benefited from on-the-job training provided by the main contractor, Lonerock Construction, during the construction phase of this project.

This still stands out as a major highlight for both Thabiso Phetla, site manager of Lonerock Construction, and Joseph Myoya, Ubona Engineers' resident engineer on site.

"As a typical Expanded Public Works Programme project, it has been designed to be extremely labour intensive. By November 2018, there were as many as 60 locals working alongside members of our team. This number will increase when we commence on the ancillary works, such as the installation of the guardrails and construction of the storm-water drains," Phetla says.

Notably, four engineering student technicians were also selected by Lonerock Construction to gain practical experience while working alongside its team as part of the company's ongoing commitment to skills development in the construction industry.

Considering its many complexities that have often demanded "out-of-the-box" thinking by the client and its professional team, this project has proved to be a very fertile training ground for these students.

Myoya says that one of the challenges was quickly adapting the original engineering design that was completed more than eight years ago to current conditions without delaying the works programme.

"While the engineering design was completed by another engineering consultancy in 2010, the construction of the road was delayed by RAL due to limited financing and other pressing responsibilities. The villages have since rapidly expanded with many properties located within the planned route. The road, therefore, had to be extensively realigned to avoid having to relocate more than 200 affected properties. Our approach, which also included reducing the width of the 2-metre shoulder in areas, resulted in significant cost savings for the client, while also mitigating further delays to delivering this critical infrastructure to the communities," he says.

Moreover, the original design of the bridge over the Mankgate River had to be adapted to align with the higher level of the new realigned road.

It is one of two major and technically-complex structures that were built by Lonerock Construction as part of this project.

At six metres in height, it is significantly taller than the original design and is, thus, well above 20-year floodplain.

Substantially more reinforcement steel was required for the taller concrete abutments and additional precast concrete elements were needed to build the larger 20-metre long and 11,5-metre wide superstructure.

The eight 18 precast-concrete beams and 126 precast concrete deck planks were manufactured and installed by CoreCivils, the precast concrete bridge beam and parapet arm of CoreSlab.

Representatives of Lonerock Construction and Ubona Engineers worked closely with CoreCivils to ensure that the bridge beams conformed to the clients' exacting standards.

Representatives of the company visited the factory in Polokwane on several occasions to observe the manufacturing processes deployed at the company's state-of-the-art facility.

Most importantly, they wanted to witness the tensioning processes to allay any concerns regarding potential cracking at the ends of the elements.

The benchmark for quality was confirmed after the first element had reached a compressive strength of 45 MPa and CoreSlab was given instruction by the team to proceed with the manufacture of the remaining seven beams and deck planks.



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