



# Lovemore Bros.

MACHINE MOVING AND RIGGING CONTRACTORS

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<http://www.lovemore.co.za>

*Simply getting on with it.*

## CHALLENGING PROJECT TO MOVE BRIDGE SPANS FROM POINT OF MANUFACTURE TO ELLIS BROWN VIADUCT

Lovemore Bros extendable trailers which were imported from Germany at the beginning of this year, had their work cut out for them recently when the first of 15 arched spans were lowered onto piers to widen the Ellis Brown Viaduct crossing the Umgeni River in Durban.

The arched precast spans will make additional space available for a long-awaited three metre wide dedicated cycle lane for Durban's cycling enthusiasts.

What made the project so precarious was the fact that the 31 metre long spans are only two metres wide. Whilst they are extremely strong in the upright position in order to carry traffic across the bridge, they will snap like wafers if buckled or twisted.

According to Jerome Kieser from Afristruct Projects which built the arches and contracted Lovemore Bros to transport and install them, the precast 55 ton arches contain three ducts through which cables have been pulled and tensioned giving the arches extra strength. It also makes it even



**The first of the 15 concrete spans – each about 31 meters long and weighing about 55 tons - fabricated on this vacant land at the end of Riverside road, sets off on the short but hectic journey to the Ellis Brown Viaduct**

more imperative that they are kept perfectly upright at all times.

"We had no hesitation in contracting Lovemore Bros who are the leading rigging and big lift moving company in the country to take on the transportation and rigging work," said Kieser.

However, it was not a simple matter of resting the arch on the extendable trailer and driving off. The unruly terrain where they were fabricated at the end of Riverside Road next to the mouth of Umgeni River meant that the

variance of the front of the trailer and the dolly at the rear would in all probability cause the arch to twist and break.

Therefore purpose-made cradles were built by local engineering company Avellini Bros. They were placed on either end of the extendable trailer and the arch lowered onto them so that they were suspended from the cradle thus giving the arch some room to swing sideways.

*Continued on page 2*



**(left) The steep cross-fall of the offramp was cause for concern, but it was successfully negotiated**

**(right) Note the steel cables that are pre-stressed at the casting yard to give the bridge its load bearing ability**



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Abnormal Loads

Mechanical Projects

Warehousing

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Continued from page 1

Bruce Lovemore, joint MD at Lovemore Bros which was contracted by Afristruct to transport the 55 ton concrete arches from where they were fabricated on the vacant land at the end of Riverside Drive said the project presented some complex challenges.



**Engineers discuss the finer points of the complex project**

“We had to do some adjustments to the cradles on site which included welding spacers to prevent the arch from swaying too much. There were also some tense moments as the extendible trailer negotiated the relatively steep crossfall of the highway’s glide-off but the homework had been done properly and the engineering feat was achieved without incident.”

On the Ellis Brown Bridge two 120 ton cranes lifted the arch off its cradle and positioned it on the piers piled into the river bed.

This called for some intense rigging work as the arch had to be lowered between the bridge and a concrete column barely wide enough for the arch to fit.

When the R11 million project is completed, cyclists can ride from the Bird Park on Riverside Drive, cycle to the highway, safely cross the river mouth and continue on the Snell Parade through to Ushaka Marine World.



**Having arrived safely on the Ellis Brown Viaduct, Lovemore Bros riggers prepare to hoist the span off the trailer and lower it onto the piers**



**Not much further to go, but it’s a tight squeeze with only centimeters room**



**One down, 14 to go**

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