BURLINGTON COUNTY COURIER
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BCT staff photos/DENNIS MCDONALD

Reflected in the early morning light yesterday, the center span of the bridge that will carry the light-rail line over the Rancocas Creek between Delanco and Riverside is held upright by cables.

Workers hoist light-rail bridge back atop barge

By Jim Donnelly and Mike Mathis
BCT staff writers

RIVERSIDE — Moving fractions of an inch at a time, crews Friday night righted the fallen railroad bridge which will carry New Jersey Transit's light-rail line over the Rancocas Creek.

The blue bridge was placed atop a barge on the Riverside side of the Rancocas Creek just before 11 p.m., capping a day of preparation and anticipation in which workers methodically labored to free the span from the creek in which it had been stuck for more than three months.

The daylong preliminary work began to pay off about 5 p.m., when six giant winches began the laborious task of lifting the bridge out of the water.

It was a task which wasn't completed until late Friday night, NJ Transit spokesman Charles Ingoglia said.

Workers spent most of yesterday securing, stabilizing and inspecting the span and noting any damage that may have resulted from the accident.

The effort to maneuver the bridge between the two piers on the Riverside and Delanco sides of the creek won't occur until high tide Tuesday, Ingoglia said. Any necessary repairs will be undertaken once the span is in place,

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An employee from Rigging International, based in Alameda, Calif., works on preparations Friday to right the fallen railroad bridge over the Rancocas Creek. The bridge toppled at a 45-degree angle April 5.

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he said.

The light-rail bridge is 210 feet long and was mounted to a 180-foot barge during construction. The bridge and barge toppled at a 45-degree angle April 5. Five steelworkers were thrown into the Rancocas Creek but none were seriously injured.

The recovery mission involved a complicated series of small, individual movements of the massive structure within a confined space and timed in conjunction with the Rancocas Creek's powerful incoming and outgoing tides.

The project was planned for about two months by Alameda, Calif.-based Rigging International, which operates an East Coast office in Washington Township, Gloucester County.

The first step involved is checking the condition of the bridge, including underwater inspections by marine-salvage divers. On Friday, NJ Transit officials said they believe any damage to the bridge was minor, and said it would be floated into position at high tide and lifted atop the concrete pilings in the middle of the creek, possibly by early this week.

"They'll continue to inspect it after it's in place, and there may have to be some minor repairs, but nothing that will be long term," said Marcus Vitiello, a spokesman for Bechtel Corp., which is building the light-rail line with NJ Transit.

Getting to that point was an elaborate, minutely planned process that stretched over two days. Rigging International's job involved more than getting the bridge upright. It also had to raise both the bridge and barge to get the barge away from the creek bank and out of the muck.

The span and barge then had to be maneuvered past the creek bank and one of the concrete piers that would support both the bridge and tracks spanning the creek from Riverside.

All movements were controlled by a network of cables up to 2 inches in diameter, secured to various points on the span, and stretched from seven heavy, diesel-powered winches with lifting capacities of 300 tons each, attached to concrete anchors on both sides of the creek.

With the bridge weighing an estimated 800 tons, and the barge another 100 tons or more, moving the massive assemblage was nothing like making a marionette jump.

The bridge was secured to the barge before the cables were installed, Ingoglia said.

By midafternoon Friday, Rigging International crews were pumping thousands of gallons of ballast water from inside the barge to adjust its level of buoyancy. Two huge weights, tons each, were chained to the side of the barge in a counterbalancing effect.

Moving the bridge involved slowly engaging the winches to gradually apply tension to the cables, depending on the direction of movement desired, to keep the moves as gradual as possible.

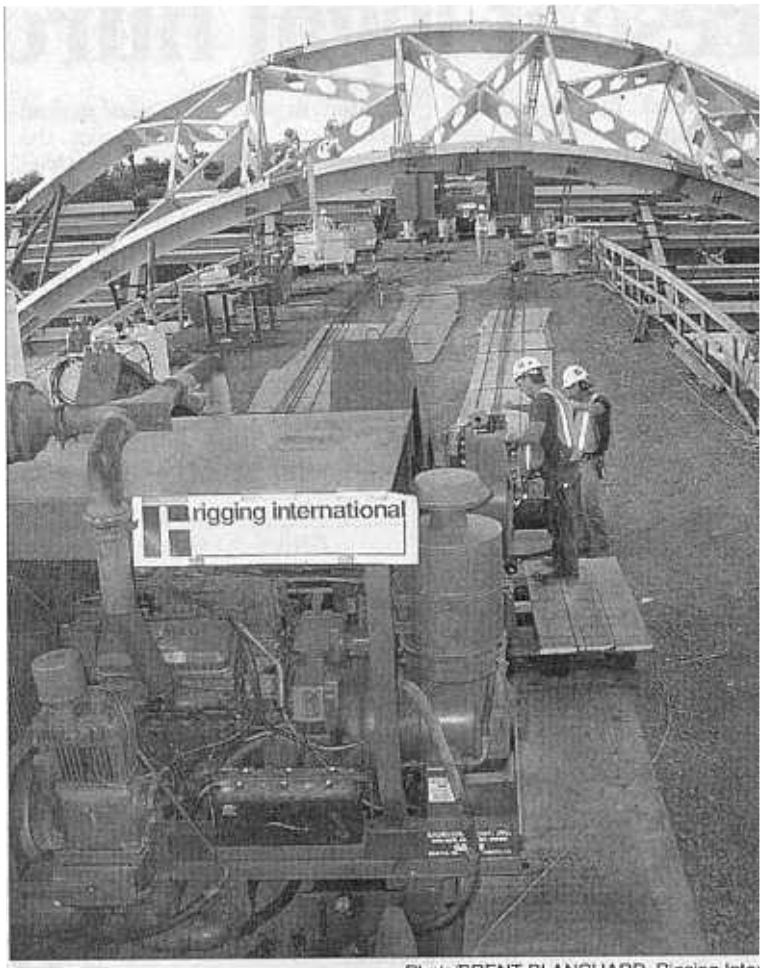
With the bridge weighing an estimated 800 tons, and the barge another 100 tons or more, moving the massive assemblage was nothing like making a marionette jump on its strings. Most of the movements were so slight, a few inches a time, that they could not be discerned by the eye from afar.

"It's not just a matter of taking the bridge from this angle to this angle," Bechtel spokesman Howard Menaker said.

"You also have to move the bridge and lift it. It's move, stop, move, stop. The barge and the bridge have to move together, which is part of the delicacy of all this."

Diagrams prepared by engineers to plan the move laid out more than 100 separate steps, Vitiello said.

The process was controlled by Rigging International engineers on both sides of the creek and aboard the bridge and barge, all in constant radio contact.



Photo/BRENT BLANCHARD, Rigging Inter

Workers with Rigging International, based in Alameda, Calif., begir operations Friday on the south abutment of the light-rail bridge ov Rancocas Creek between Delanco and Riverside.

The Federal Aviation Administration imposed a no-fly zone with a one-mile radius of the site, because crews could not hear their radios with news helicopters clattering overhead.

Troopers from the state police Marine Bureau blocked the creek channel to boat traffic during the move.

After each move, crews would halt their work and then inspect the bridge's position in the creek, and the angle of the cables.

"You basically want the cables on the north (Delanco) side to win the tug of war, and the cables on the south to relay a proportional amount of force," Menaker said. Gauges attached to the winches measured the amount of tension on each cable.

Vitiello said the Bechtel-NJ Transit consortium still expects to have the 34-mile line between Trenton and Camden in operation on scheduled in the first quarter of 2003. Ingoglia said work on the rest of the line has continued while planning for the bridge re was under way.

"I don't want to say the po ity (of a delay) doesn't Ingoglia said. "A lot of it is go be contingent on what we when we inspect the bridge, terms of major damage, we co see any from shore."

Vitiello said the cost recovery has not yet been ca ed, but it will not be borne b payers or NJ Transit riders cost will be covered by the co tors' insurance companies, he

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Photo/BRENT BLANCHARD, Rigging International

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"I don't want to say the possibility (of a delay) doesn't exist," Ingoglia said. "A lot of it is going to be contingent on what we find when we inspect the bridge, but in terms of major damage, we couldn't see any from shore."

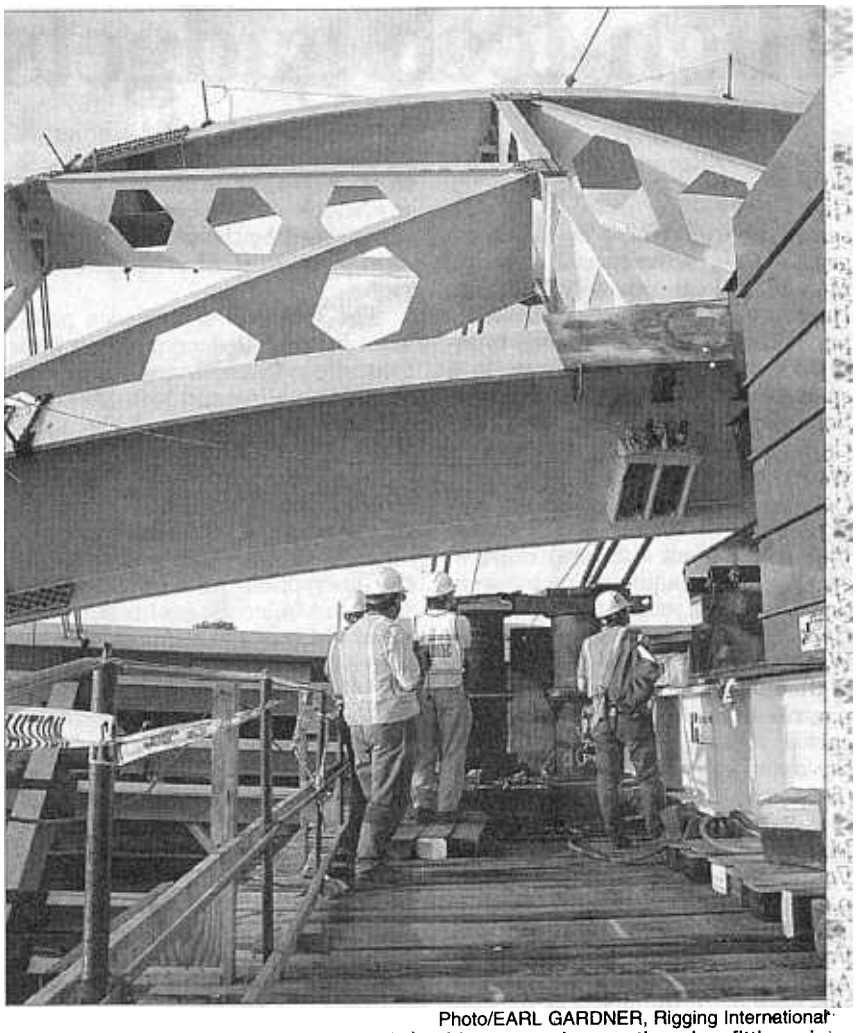
Vitiello said the cost of the recovery has not yet been calculated, but it will not be borne by taxpayers or NJ Transit riders. The cost will be covered by the contractors' insurance companies, he said.

Excessive weight mounted too high on the barge is being evaluated as a possible cause of the mishap, but an exact cause has not been determined, Vitiello said.

"It's too early to speculate," he said. "The investigation hasn't been completed and we have no findings."

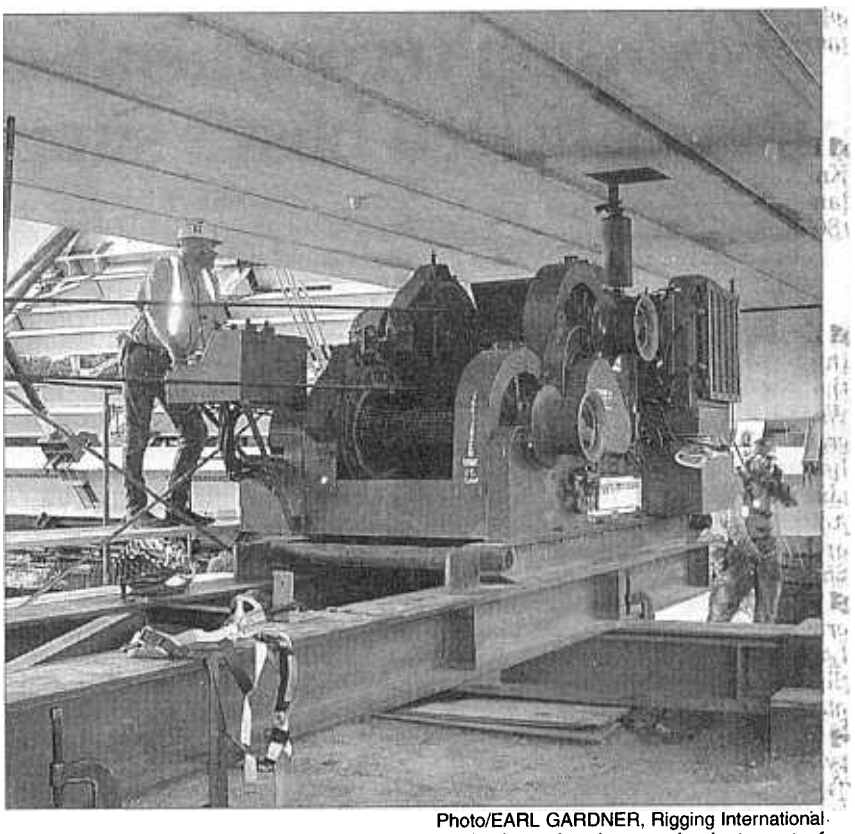
George Ehrmann of Cherry Hill stood along the creek bank on Rancocas Avenue in Delanco yesterday and marveled over the deliberateness of the righting process.

"It looks like they just quit," said Ehrmann, a retired engineer and self-described rail buff. "They're still in first gear."



Photo/EARL GARDNER, Rigging International

The south arch of the bridge, which had been resting on the pipe fittings in the foreground, slowly begins to rise during work Friday.



Photo/EARL GARDNER, Rigging International

During lifting operations Friday, a large winch under the south abutment of the light-rail bridge slowly pulls the barge upright.