

# Crews shore up Natural Bridge

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Experts plan to secure the underside with up to 20 camouflaged metal plates attached to steel cables.

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NATURAL BRIDGE—After 5 million years of standing on its own, one of the natural wonders of the world is getting some help from mankind.

Since a piece of Natural Bridge fell on a tourist and killed her two weeks ago, the bridge's owner has brought in a team of geotechnical engineers and a company of rock stabilization experts from Canada to make sure it never happens again.

The specialists have devised a plan to drill through the 30-foot-thick limestone bridge and secure loose rock on its underside with up to 20 metal plates attached to steel cables.

That means the span — which the experts say is the only natural arch in the world with a road on it — will be a little less natural than it used to be.

But it will be safe for tourist traffic, ensuring a continued flow of 250,000 visitors a year to a part of Rockbridge County dependent upon the bridge, hotel, conference center, caverns and wax museum for its livelihood.

A geologist also did seismic testing to make sure that traffic on U.S. 11, which runs over the bridge, is not causing rock to loosen. That doesn't appear to be the case. The experts say the bridge is sound overall.

"We would rather go to the extreme than not do enough" to ensure public safety, said Mike Tatro, managing director of the bridge complex. The cost of the work will easily exceed \$70,000, Tatro said.

Unfortunately, said Daniel Joumeaux, owner of JANOD, the rock stabilization company, people often call for his company's services only after a tragedy.

"When you haven't had a problem, you don't think about it," he said.

The drilling is expected to begin today, prompting the closing of U.S. 11 for up to two weeks.

In the meantime, JANOD crew members are spending their days dangling from ropes on the sides of the Cedar Creek gorge, knocking loose rocks from their moorings with specially made wrecking bars.

The walkway under the bridge is closed, but visitors seemed pleased to watch Francis Chamberland and Pierre Jionet scale the gorge walls and send boulders crashing into the creek below — 15 to 20 tons of them so far.

The JANOD crew has become part of the show at Natural Bridge.

"They're going to have to give us some of the ticket money," Joumeaux said.

"Mother Nature wears away things in bits and pieces, and we're trying to predict which bits and pieces are next and bring them down in a controlled manner," said Skip Watts, a Radford University geologist who is helping advise the bridge management on the project.

Watts, of Radford University, called JANOD immediately, pulling the crew off a job shoring up a rock wall next to a condominium complex in New York City.

"We knew it was a tourist area, so we sort of stopped everything to do this," Joumeaux said.

JANOD is one of only four or five companies in the country that could tackle the problems at Natural Bridge. They typically work on highway cuts and rockslide areas. This is the first time they worked on a tourist attraction.

Within a few days after Oct. 23, when Louise Cathy, 83, of Stockbridge, Ga., was killed, Natural Bridge management had assembled a team of engineers from Virginia Military Institute, Radford University, the Roanoke engineering firm Hayes, Seay, Mattern and Mattern, and the Virginia Department of Transportation.

The engineers and Joumeaux considered and discarded several ideas before arriving at the bolts as a solution. One of the ditched plans involved spraying water into the cracks under the bridge and letting the natural freeze-and-thaw cycle break the dangerous rock away.

It was Joumeaux who came up with the plan for the bolts. He said every job is unique and requires a unique solution, and that can come only from vast and varied experience in rock stabilization.

He's been doing the work since he was 15, starting with his father, who founded JANOD. His U.S. crew, based in Vermont, consists of eight men, most of whom had never climbed anything but a backyard tree before Journeaux hired them.

Jionet, 27, earned a degree in computer science but wanted to do something different. He's been with JANOD for five years.

"We can take anybody said Andrew Salmaso, JANOD project manager. "If you've got the nerve to go up, we can teach you."

The danger at Natural Bridge is putting workers under the span, because, if more rocks fell, they would not be able to move quickly enough to get out of the way. So the cables and bolts will be assembled and threaded through the holes by ropes pulled from the roadway overhead.

All of the hardware will be painted to camouflage it.

Tatro, the bridge manager, said the owner plans to have JANOD come back every year. The geologists on the project also may set up some laser equipment to track even the slightest movement in the rock arch.

"This is not an insignificant effort to ensure public safety," Tatro said.

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