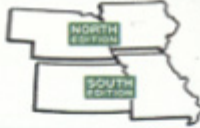


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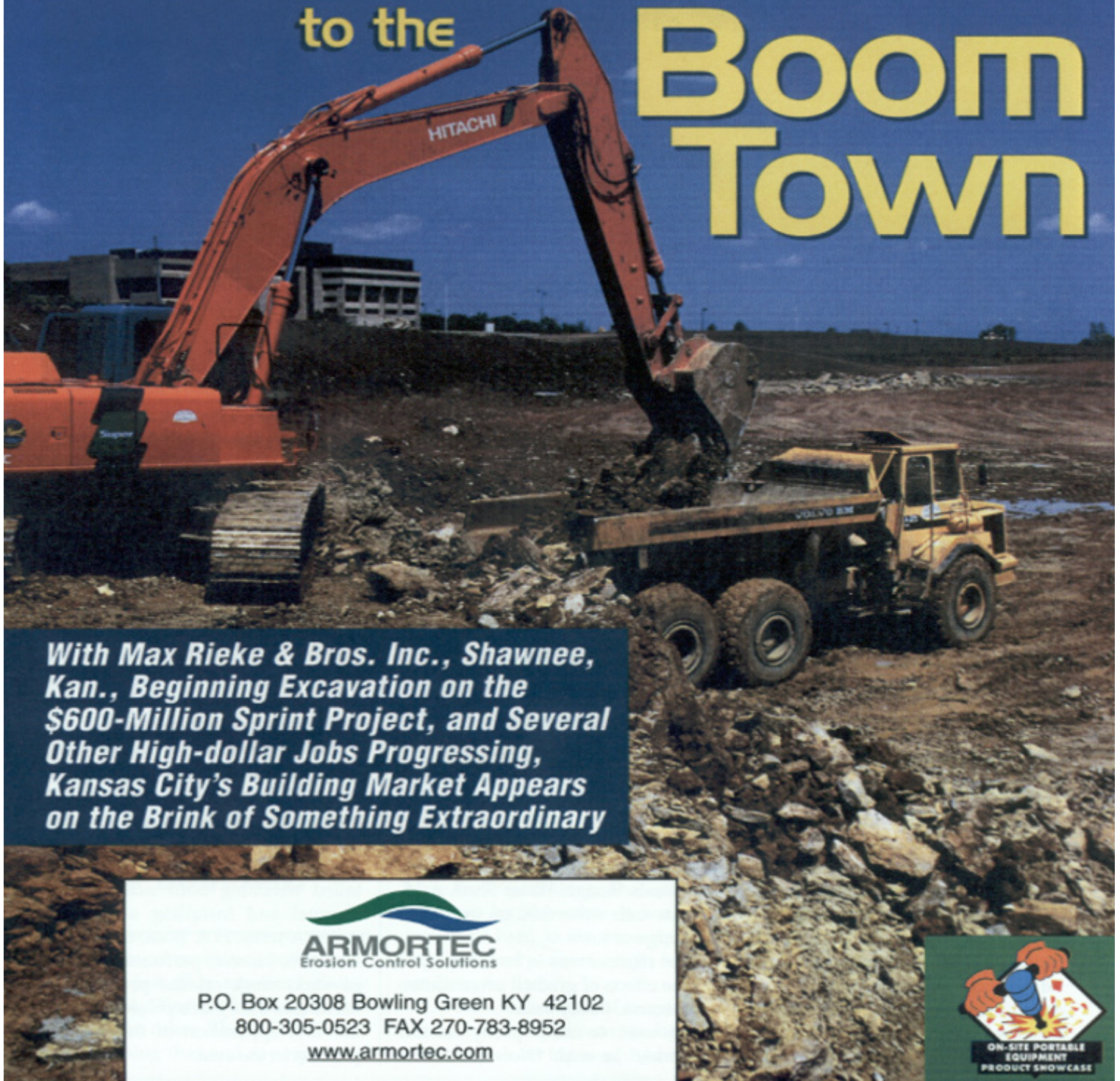
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Inside: Beals Slough Bioengineering Project in Lincoln, Neb. • Bid Info



The Beals Slough Bioengineering Project in Lincoln, Neb.

The Lower Platte River South District of the Nebraska Department of Natural Resources recently utilized several innovative products to help it address its erosion-control concerns in the Beals Slough Watershed

LINCOLN, Neb. — The Lower Platte River South district of the Nebraska Department of Natural Resources recently utilized several innovative new products for a project in the Beals Slough Watershed, located in Lincoln off Highway 2.

Andy Bailey, with the Natural Resources District office in Lincoln, explained that his organization per-

formed the work on a 600-lineal-foot section of urban stream channel in the Beals Slough Water Shed, a 15-square-mile watershed on the southern edge of town.

The channel was in bad shape due to the effects of gradual urbanization of the area, Bailey said.

"It used to be a pretty natural channel," he said. "Now it's seen a

The Beals Slough Watershed before the Lower Platte River South district of the Nebraska Department of Natural Resources began its work this past spring.

lot of the effects of urbanization. Vertical banks. It's been deepened and widened."

Instead of trying to rehabilitate the channel with a method such as rip rap or a grouted concrete mix, Bailey said the aim was to try to do the job with a more natural approach.

"We wanted to try using some more natural methods of fixing the stream," Bailey said. "We didn't modify the channel at all. We kept the natural flow of the channel."

According to Bailey, the project entailed trenching both sides of the channel and installing a product called A-Jacks. H.R. Bookstrom Construction, Lincoln, performed the excavation work on the project. According to Bailey, this project marked the first application of the A-Jacks product in the area.



Named because they look like toy jacks that kids play with, the A-Jacks product provides a base to more naturally control erosion. Bailey said not only does the A-Jacks product provide erosion control naturally, it also has the potential to perform better

“We didn’t modify the channel at all. We kept the natural flow of the channel.”

than more conventional methods.

“They just slide together,” Bailey explained. “You just lay them one on top of the other. The difference between using that and say rip rap is



that you’ve got the legs of those jacks sitting on top of the other jack so that if you do have any uplift (from a high-flow condition), that jack is going to hit the other jack and it would be hard to lift them up. Rip rap, in a heavy storm, might have a tendency to float.”

On the north section of the project, a series of two jacks on the bottom and one jack on top was used. Bank

Top: A photo of how the watershed appeared immediately after the project was completed this past May. Below: A Deere 690 ELC excavator belonging to grading contractor H.R. Bookstrom Construction, Lincoln, Neb., performs excavation of the site.

slope on this portion of the job was about 2.5:1. On the south portion of the project, however, the district was



Left: This FiberDam product, which is black geotextile fibers, was placed behind the A-Jacks in order to prevent losing any backfill material back into the channel. Right: The A-Jacks product was utilized instead of rip rap to control the erosion in the Beals Slough project. Andy Bailey, with the Lower Platte River South district, said this was the first application of this product in the area.

able to open up the channel more. Because of this, on this section of the project one row of a single jack was utilized. The slope here was closer to 2:1, Bailey said.

On top of the A-Jacks system was installed a product called Coconut Log, which is a 20-foot roll of coconut fiber wrapped in geosynthetic netting. This was done to help minimize the force of any water flowing through the stream and also to create a better medium for planting plants. In this instance, wetland plants were sprigged into the "CocoLog."

"They grow right in the log," Bailey said. "The idea behind it is that after three or four years, after that log basically disintegrates, the root system from the wetland plants will be established enough."

The banks were also seeded, with a mix of native grasses and wildflowers from Stock Seed Farms in Lincoln. This mix, which included seven or eight different native grasses, was designed specifically for use in floodplains.

Bailey commented further that because this project was in the midst of a public bike path, wildflowers were added to provide the channel with some color.

Also utilized in the project was a North American Green C350 erosion-control fabric, which Bailey described as "an extremely dense, coconut-type fabric." Grasses will actually entwine in this geofiber and create a stronger soil surface, enabling it to handle

18 feet-per-second flows.

Yet another product, known as FiberDam, was also used.

FiberDam, which are black geotextile fibers that Bailey likens to the texture of a bird's nest, was placed behind the A-Jacks, filling the areas where there were any voids or gaps in the system. The purpose of that was to prevent the loss of backfill material.

So far, Bailey has seen good results with this system.

"When we were doing this project, we had 11 inches of snow on it," he said. "So the majority of the project was getting hit with some pretty heavy flows right after it was installed."

Later, he added, "We went through a two-inch rain in six hours (with) very little damage, if any. I've had no problems with the logs being blown out or the jacks coming up. It's been doing real well."

Work started April 1. Channel excavation and grading was completed by the first part of May. Seeding was completed by May 20.

The total cost of the project was close to \$115,000. ■



Excavation work progressing.