

Emergency Repair to a Damaged Telecommunications Duct Pack

Existing MaxCell® Flexible Fabric Innerduct Reduces Return to Service Time for One Midwestern City

It was a typical bustling Friday afternoon in the city of Springfield, Missouri in late January 2024. Springfield is in the southern part of the state and is home to half a million residents, four colleges, and millions of tourists that visit there each year.

On this afternoon, a vendor tried to place fiber cabling into the right-of-way owned by a major telecommunications company. As you probably know, telecommunications companies and other regulated utilities must share right of way access with other vendors and competitors. While placing the fiber cabling this vendor accidentally drilled through an existing duct pack owned by the telecommunications provider.

In this industry, ducts provide a secure pathway for cables, protecting them from external elements. This duct pack was placed in 2018, when the telecommunication provider placed an 864-count fiber cable in the duct over a 24-count fiber cable that was full. At that time, they placed a three-inch, 3-cell MaxCell Edge flexible fabric innerduct prior to installing the 864F cable.

You may be asking yourself why they utilized the MaxCell fabric innerduct in their original installation. With its unique fabric construction, this product conforms to the cables that are placed within it, thus greatly reducing wasted space associated with rigid innerduct. There are a variety of other benefits to using the MaxCell flexible fabric innerduct system that was designed specifically for the network construction industry:

- Ability to place 300% more cable construction
- Providing cable sheath protection
- Faster installation
- Savings on network construction
- Eliminates new construction
- Reduces material and labor costs

Luckily, when the vendor drilled through the duct pack, they only hit the top row of cables. Unfortunately, this included two large copper cables and the 864F cable that was placed in 2018. While the fiber was not completely cut, it was damaged enough that approximately 100 customers were without service.

Did we mention this happened on Friday afternoon?

As discussions began about how to resolve this, it was determined that a new duct would need to be placed. This would not be a simple task. It would include boring a four-lane divided state road with outer roads on each side. The Missouri Department of Transportation (DOT) would have to be notified, boring equipment brought in, and



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then the fiber would need to be pulled through. Best case scenario, this part of the restoration could be completed by Saturday evening. Allowing for time to splice the fiber after it was pulled through meant that it would probably be late Sunday before service could be restored. As these types of things generally go, since it was Friday afternoon that meant crews would be working throughout the weekend to complete the restoration as quickly as possible.

While mobilization efforts began, the contract coordinator pulled on the pull string inside one of the other cells of the MaxCell Edge. When it did not come out from the cut, someone was sent to the other manhole to check it. They found that it was still tied off and tight. With a small pull from that end, they decided to try and use it. Since they had over an hour to wait for the boring rig to arrive, they had time to try.

An 864F restoration fiber was tied to one end and the new fiber was pulled through by hand in less than ten minutes. This was a 664' pull through a damaged duct in a MaxCell flexible fabric innerduct that was placed in 2018 (almost six years prior).

What happened next?

First off, the boring rig was immediately canceled and a request to get splicers on site was initiated. Once the splicing technicians arrived, they quickly went to work to splice the fiber and get the service reestablished. By 10:00 PM on Friday evening the out of service fibers were restored and the technicians went home. That was just a few short hours after the initial damage occurred and much earlier than the original estimate of Sunday for the completion of restoration.

Although the main goal of restoring service was quickly completed, the team would need to return on Monday to cut in the remainder of the fibers. Because the customers had their service quickly reestablished, this meant the additional work could be done during normal business hours on Monday. This saved the telecommunications provider a considerable amount in unnecessary overtime costs.

Earlier we mentioned that when the contractor damaged the existing 864(f) cable, 2 existing copper cables were also slightly damaged. Technicians were able to successfully move customer traffic from the damaged fiber cable to

the existing working copper pairs temporarily while the issue was being resolved. Traffic was rolled back from the copper cable onto the new fiber once it was installed and all customers were back in service by Friday night.

Pulling new fiber through the existing MaxCell innerduct reduced the return of service time from **48 hours to 4 hours**. This saved the telecommunications provider a considerable amount in overtime costs.

When you know, you know.

In speaking to the outside design engineer for the telecommunications provider, he said that this incident was a perfect example as to why they had been utilizing MaxCell Edge in this area for several years. He went on to say that consistently using MaxCell when doing their duct runs over the last few years has made it much easier for their technicians to perform service and repairs, as well as resulting in time and labor savings. He also mentioned that the initial cost of installing the original MaxCell Edge product in 2018 had more than paid for the labor savings from this one incident that took place in Springfield that Friday night.

Restoration time, cost savings and most importantly, customer satisfaction are all important to a telecommunications provider. This is just another example as to how MaxCell is proving its worth in the network construction industry.



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