

No Job Too Big For Baker Electric

Iowa Utility Contractor Tackles Its Longest Bore for Wells Fargo Project

BY TARA DEERING, TWO RIVERS MARKETING

Why lease telecommunication lines when you can install your own? That's the question Wells Fargo officials asked themselves when they wanted to connect their home mortgage office in West Des Moines, Iowa, with their proposed 176-acre office campus four miles away. So when they decided it was more feasible to install their own telecommunication lines, they turned to Baker Electric Inc. of Des Moines.

Since it was started in 1948, Baker Electric has been a familiar name in Des Moines, having grown to approximately 450 employees and several divisions. The company now does everything from commercial, industrial and residential wiring to installing traffic signals and telecommunication lines. In fact, the company's underground division was established just seven years ago when the horizontal directional drilling (HDD) market took off.

The company's underground division focuses on installing voice and data telecommunication lines, as well as higher voltage electrical services. This, and the fact that the company has had a longtime relationship with Wells Fargo, is why it was chosen for the recent \$500,000 HDD project, according to Britt Baker, CEO of Baker Electric.

Commercial vs. Residential Property

Wells Fargo commissioned Baker Electric to install two four-mile stretches of fiber-optic lines from its current home mortgage office to its planned 176-acre office campus. The telecommunication lines would provide a vital line of shared data between the two offices. Because of this, Wells Fargo officials asked that Baker Electric install two separate lines with two separate drill routes. This way, if one line becomes damaged, they can switch to the backup line and communication between the campus and home mortgage office can continue uninterrupted.

For Baker Electric, the total eight-mile project was one of its largest HDD jobs. According to Lee Rose, the underground division field supervisor, a civil engineer was hired to help map the most efficient and cost-effective drill plan for both routes. Instead of mapping a route along the city's major thoroughfares, Baker Electric was forced to drill along both commercial and residential property.

"The city wanted us to go into some of the residential areas so that we wouldn't fill up their parking ease-



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ments along the major streets," Rose says. "They wanted to leave their bigger easements open for future utilities and if they happened to widen the street."

Drilling through residential areas takes longer to complete because there is a greater number of utilities to cross and much more communication is needed to inform residents about the work being done in their parking easement. Before crews even began work along a residential street, Rose says they placed door hangers on each home telling residents what they would be doing and when the work would take place.

"It's a lot more upfront communication so that residents are aware of what you're actually going to do,

when you're going to do it, and what it's going to look like when you're done," Baker says.

Still, before crews could begin drilling, they had to locate the dozens of utilities along the residential streets. Along commercial property there are typically only a few major utility lines feeding several businesses on the street. On a residential street, however each home has its own set of electric, phone, cable TV, gas, sewer and water lines.

"There's a big difference in going down a commercial parking easement as opposed to going down a residential area," Rose says. "For one bore, we had to do 36 locates just to install 500 ft of pipe. It can probably take you two days of preparation before you can do a half-day of boring."

Interstate Challenge

Once the drill path was planned, the residents were notified and the utilities were located, Baker Electric crews got to work. For most of the eight-mile job, they used the company's largest HDD unit — a Vermeer Navigator D24x40A with a 4½-in. duckbill drill head with carbide cutters.

When mapping the drill path, the plan called for crews to run the telecommunication lines north along a street that overpasses Interstate 80 in West Des Moines. Rose says he knew this would be his crews' biggest challenge. In order to cross the interstate, they would have to successfully complete a 1,472-ft bore — the longest bore they had ever attempted with the machine. Within those 1,472 ft, crews would need to drill 60 ft deep to go under the interstate and then back up another 60 ft to come out on the other side of the overpass.

Starting out, workers encountered their first obstacle when trying to locate the drill head underneath the interstate ramps. As the bore approached a depth of about 30 ft, Rose says the locator readings started to get fuzzy because the system had to transmit through all the concrete and rebar used to construct the ramps. The second obstacle came just as Baker Electric crews were about to complete the bore. They had begun to pull back the product when a carrot-puller let loose.

Because the crews were inside Department of Transportation property where digging isn't allowed, they couldn't dig up and retrieve the carrot-puller. In a situation like this, Baker says all they could do was start the bore all over again. The second time around, Rose says the 1,472-ft bore didn't pose any problems for his crews. After completing the second drill path under the interstate, they used a Vermeer 6-in.

fluted back-reamer, which they modified by welding on cutting teeth to pulverize the dirt so the drilling fluid and pipe could flow through easier. They modified the back-reamer especially for this long bore, but they have also been successful in using it for other projects.

Rose explains that on a long bore such as this, it was especially important to have an experienced operator who understands the theory behind the pullback. Without that, crews can experience problems when pulling back the product rather than when drilling out.

"The key to a successful back-ream is to not get ahead of yourself and not outrun your fluids," he says. "If you start pulling a little dry and you're not having flow on your back-ream, you're going to start locking up the pipe." Crews were able to pull back the pipe containing two 2-in. conduits using Tru-Bore drilling fluid with detergent — without any pre-reams.

The Wells Fargo project is just one example of how the Baker Electric Underground Division has grown over the years to take on larger jobs. And to compensate, the company has had to grow its fleet of HDD machines, starting out with a Vermeer D10x15 in 1998 and adding a Vermeer D16x20A and the D24x40A. Rose says they wouldn't have been able to complete the nine-month long project and overcome the obstacles they encountered without their largest HDD unit. **UC**

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