

When the Levee Breaks...

Bacara Helps Accurately Repair NE Levee

When levees break, unrestrained floodwaters can quickly cover thousands of acres of land. The problem with repairing damaged levees (not including adhering to the Army Corp of Engineers' standards) is getting an accurate bid. Measuring miles of dirt is no easy feat especially with traditional methods. Bacara's ability to survey damaged levees with its LiDAR system provides contractors with dirt quantity reports that show the full scope of work, down to the inch.

On March 16, 2019, levee R562 north of Peru, Nebraska was breached for the first time since the levee was built in 1952. The breach flooded homes in the Peru bottoms, took the Peru water treatment plant offline and left approximately 8,000 acres of farmland underwater. The biggest issue was the damage couldn't be repaired right away; the Army Corps of Engineers wouldn't provide the funds due to a misfiling of paperwork. That made finding a solution that didn't waste money, or time, a top priority.

What We Did

Bacara was hired by a dirt contractor to survey the levee. The contractor needed a dirt quantity report that would accurately pinpoint just how much dirt it would take to fix the levee in order to submit an accurate bid.

Right off the bat, traditional survey methods were out. With the levee being six miles long, there's no possible way a traditional ground survey would work, not to mention it wouldn't be cost effective. Bacara used LiDAR technology to scan the entire area. LiDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.

These light pulses, combined with other data recorded by our drone, generate precise, three-dimensional information about the shape of an area and its surface characteristics.

Using LiDAR technology, Bacara licensed surveyors could see every single piece of the levee and every single place where it needed to be repaired, down to the inch. The dirt contractor was able to submit an accurate bid.

Our Competitive Advantage

Not only is Bacara good at this type of work (we are one of only a handful of companies in the area that can do this type of surveying) but our sister companies, CEC and RP Constructors, can literally design and build levees. Our three companies combined are a levee survey, design, build powerhouse. This expertise can save our clients precious time and money for repairs, which may come in handy in the near future.

There are hundreds of beat up, damaged and derelict levees up and down the Missouri River. The March 2019 floods damaged 54 levee systems in the Omaha District alone. More breached levee systems like R562 could be left unrepaired, leaving the surrounding area susceptible to flooding. Another advantage to hiring Bacara is our services don't have to be done AFTER the levee has already been breached. Our inspections can find problems that are unknown, helping to prevent future damage.



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