

## Ergonomic manhole cover developed for elevated manholes

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## REVOLUTION Access Assembly Solution–Town of Cary, North Carolina

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The Town of Cary is situated in the heart of The Triangle: North Carolina’s famed high-tech R&D park – the largest one in the USA. Founded in 1750, the Town is regularly touted by the Wall Street Journal, Forbes, Kiplinger and Money magazine as one of the “hottest” and “best” small towns in America. The growing town, with a population of approximately 156,000, is one of the safest and most affordable places to live in the U.S.

The downside: Some areas are prone to occasional flooding. The Town is situated within the Neuse and Cape Fear River basins, with dozens of streams and lakes located in its boundaries. During floods and periods of heavy rain sewage would sometimes flow into the water systems. Inflow and infiltration is an ongoing concern.

When sewage infiltrates creeks and lakes, fish and wildlife are endangered and the Town of Cary must deal with the resulting cleanup and potential fines – not to mention the bad press! It didn't happen very often, but it was unacceptable. The Town needed to find a better solution.

## **The Quest for a Fix**

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The push to find a better solution gained momentum around 2006 when Tropical Storm Alberto caused Crabtree Creek to rise to 23.77 feet. Besides flooding the nearby Crabtree Valley Mall, several manhole covers along the sewer line popped off, allowing sewage to spill into the creek.

In wet areas, the Town of Cary uses elevated manholes – some up to six-feet tall – with standard 24-inch manhole covers and rings to help prevent I&I issues. When stressed, the manhole covers would pop off. A standard 24-inch manhole cover weighs about 130 pounds. Removing heavy manhole covers while on a ladder six-feet above ground was dangerous. The blast of gases escaping the open manhole didn't help, either.

The Town piloted several hinged manhole cover installations to see if they would solve the problem. Hinged manhole covers resolved the dilemma of what to do with the cover once the worker had lifted it off the manhole, but they were still too heavy for workers to comfortably manipulate.

“We didn't care for them,” said Robert Hirt, P.E., utility engineering supervisor for the Town of Cary.

## Partnering With EJ to Develop REVOLUTION

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About 14 years ago the Town of Cary asked EJ to help them find a satisfactory solution. The result of this collaborative partnership is the REVOLUTION Access Assembly. Unlike standard or hinged manhole covers, the REVOLUTION Access Assembly requires no lifting. Once the bolts are removed, workers can easily rotate the lightweight cover away from the opening to access the manhole. The cover, which can be moved in either direction, weighs only 65 pounds. It stays attached to the frame via a cast-in stainless steel rod. One worker can easily access the elevated manholes.

“Being able to easily remove it and not have it go anywhere was a great solution!” Hirt said.

EJ created two options for the Town of Cary – a one-bolt water-resistant version for areas above the 100-year floodplain and a three-bolt [Watertight \(Level 1\)](#) version for areas below the 100-year floodplain. The [Watertight \(Level 1\)](#) REVOLUTION Access Assembly effectively eliminates sewer spillage. A security bolt option keeps the manholes “off the beaten track” safe and secure.

“It took a few different versions to create a prototype the Town was happy with,” said Tom Schweitz, North Carolina’s branch manager for EJ. “But when we did, the Town of Cary included the REVOLUTION in their specifications.”

## A Successful Solution

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“When the lid is seated correctly The REVOLUTION works great for preventing any type of inflow, pretty much across the board, everywhere we’ve installed it,” Hirt said.

A backup along the Walnut Creek sewer outfall, following Hurricane Matthew in 2016, proved that point without a doubt. The REVOLUTION Access Assembly didn’t budge. Instead, the cone section of the manhole dislodged.

“This certainly proved the lids to be watertight!” Hirt said.



## An Unexpected Bonus

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Besides solving the town's I&I problem, the REVOLUTION Access Assembly provided another huge advantage.

“We’ve started to see a reduction in back injuries among our sewer crews,” Hirt said. “That’s certainly related to not having to remove the lids as often and in the manner they used to. It’s a great benefit.”

## Partnering for the Long-Term

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The Town of Cary has been an EJ customer for more than 20 years now. The company’s innovative, problem-solving approach is one reason, but excellent customer service is also a critical relationship-building component.

“We are very pleased with EJ,” Hirt said. “Tom always makes himself available whenever we need him, and answers all our questions. No complaints there.”