

Liner installation tools

AS THE PRICE of large excavations and road closings rises, the Johnson County Secondary Roads Department has been lining existing culverts with plastic and filling the void with flowable fill. The problem was that culvert liners were nearly impossible to screw together in an excavated site.

Johnson County's culvert and drainage crew developed installation tools that have cut the department's liner installation time from 4-6 hours to 30 minutes. The first section of liner is slid inside the old structure and held in place with a strap wrench. The next section is suspended by a cradle, which is attached to the excavator, and threaded into the first section. A second strap wrench helps twist the second section into place.

The strap wrenches are made of 2-inch square tubing and 2-inch tie-down straps. The cradle was built of two 4-inch baler straps and two old conveyor rollers with the sides of old disc blades to keep the straps centered. The straps are mounted to a 12-foot 4" x 4" and suspended by a chain on the excavator.

Editor's note: The liner installation tool is one of several winning innovations from the "Better Mousetrap" competition at the Iowa Maintenance Expo in September 2001. We're highlighting one of the winners in each issue of Technology News. For information about other winning "mousetraps," see CTRE's website: www.ctre.iastate.edu (under "CTRE News").

For information about entering the September 2002 "Better Mousetrap" competition, see the cover of this issue.



Strap wrenches help twist the liner sections together.

For more information about the liner installation tools, contact Pat Zimmerman, culvert and drainage crew leader, Johnson County, 319-356-6046. •

The Johnson County culvert and drainage crew uses a cradle to maneuver and place a culvert liner.