Trenchless Construction Services LLC of Arlington, Wash., has successfully completed one of the first pilot tube projects in Washington state, using ICON's slide rail system and a Buhrecc 15M008S pilot tube micro-tunneling machine.

Sedro-Woolley, a small, quaint logging town in Washington has recently begun increasing its trenchless pipe installation program due its proven success. Trenchless pipe installation minimizes disruptions and costs, while proving to be an effective way to install pipe.

Trenchless Construction Services LLC, a trenchless pipe installation and replacement construction company, was the general contractor for the $3.5 million Sedro-Woolley SRO Township trenchless sanitary sewer improvement project.

Trenchless Construction was responsible for installing 14 manholes and 5,400 ft of 15-in. diameter and 24-in. diameter gravity sewers pipes at a .16 percent grade. Trenchless methods were required for this project because the pipe was to be placed under and adjacent to State Highway Route 20 and State Highway Route 8.

These methods were used because of a lack of detour.
options to maintain traffic flow," says John Gustafson, owner and manager of Trenchless Construction Services LLC. "The soil conditions, as well as the accuracy of pilot tube microtunneling, also made it the preferred method for the 15- and 24-in. portions of the project."

Pilot tube microtunneling, also referred to as guided auger boring, was introduced in the 1990s for the installation of small diameter sewer lines and water lines. Guided auger boring systems are similar to microtunneling systems with the addition of a guidance system. This accurate guidance system consists of a camera-mounted teledolly to ensure a high accuracy of the line and grade.

Prior to construction, Trenchless Construction sponsored a meeting with its employees, engineers and sub-contractors in order to get everyone on the same page. ICON, a New Jersey-based side rail system manufacturer and Bobertec pilot tube distributor, and Mission Clay, the No Dig clay pipe manufacturer both made presentations of their products.

"Our goal was to make sure all parties had a clear view of the project scope, as well as what the work was going to be," says Gustafson. "I was very pleased as everyone was able to ask questions and get direct answers from the manufacturers."

This project would require a total of six jacking pits in which Trenchless Construction would place the pilot tube boring machine to jack the sewer pipe between manholes. The jacking pits were dug using a hydraulic excavator weighing 54,000 lbs.

Trenchless Construction used ICON's slide rail system to shore the six jacking pits, which were 11 ft wide by 20 ft long by 14 ft deep. This slide rail system is designed and built to withstand the jacking forces of the Bobertec BM 400L3 pilot tube machine.

"ICON's slide rail system is very easy to install, which saved us a tremendous amount of time," says Gustafson. "The slide rail system reduces setup time and is substantial enough to withstand the forces of the BM 400L3."

This slide rail system also features temporary sheeting, which allows the contractor to extract small sheeting panels rather than large sheeting panels to create an opening for the pipe installation. The Bobertec BM 400L3, with a jacking force of 150 tons and 75 tons of pull back force, can perform guided drillings in one, two or three plane procedures such as pilot drilling, reamer drilling with steel protective piping; alternative reamer drilling with pushing of product pipes at the same time and drilling with welded steel pipes.

Trenchless Construction first performed the three-phase guided drilling installation with the 24-in. diameter clay pipe. The three-phase procedure consists of installing the pilot tube to secure an accurate line and grade. When the pilot tube reaches the receiving shaft, a 16-in. casing with an auger inside is connected to the last section of pilot tube in the jacking pit.