

CASE STUDY

MICROTUNNELING | SLURRY MICROTUNNELING

**Project Name:**

SR 37 Offsite Drainage Outfall Storm Sewer - North Segment

**Prime Contractor/Subcontractor:**

Midwest Mole, Inc./Super Excavators Inc.

**Location:**

Fishers, IN

**Owner:**

Indiana Dept. of Transportation

**Ground Conditions:**

High water table, glacial till, sandy loam, sand, and gravel

**Akkerman Equipment:**

SL60C MTBM system, Mixed-Face Disc Cutter Head, AZ100 TGS

**Pipe:**

54-in. ID RCP

**Total Length/Longest:**

5,920-lf./2,304-lf.

PROJECT OVERVIEW

The SR 37 Offsite Drainage Outfall Storm Sewer - North Segment Project is owned by the Indiana Department of Transportation. It is part of the SR 37 Improvement Project, Phase 1 in Fishers, IN that was awarded to general contractor, Midwest Mole, Inc. (MWM).

The project involved constructing two offsite drainage outfall storm sewers to address roadway drainage to dispense into natural surface water bodies. Additional work included site access construction, building a detention pond and outlet, and site restoration.

As a subcontractor to MWM, Super Excavators Inc. (SEI) was selected to execute the installation of the second drainage outfall via microtunneling in the north section.

THE CHALLENGES

MWM crews embarked on the first outfall drainage tunnel with a closed-face TBM to excavate a 2,100-lf., 84-in. tunnel of steel beams and wood lagging, for completion with a 54-in. ID Hobas® final liner.

Unfortunately, at 1,100-lf., the geology became unconducive to the technology MWM determined that tunnel completion by microtunneling would be necessary. It was added to SEI's microtunneling workload.

The microtunneling challenges included:

- High risk, 1,966-lf. complex curved alignment
- Water table encountered at 10-ft. from the surface
- Inverts up to 44-ft. below grade
- Minimal cover to complete first outfall

THE SOLUTION

SEI used their Akkerman SL60C MTBM system with a mixed-face disc cutter head, and their AZ100 TGS system for tunneling navigation.

The original microtunneling footage comprised 4,285-lf. of 54-in. ID RCP pipe with inverts up to 44-ft. below grade. SEI's first run was a record curved installation for them at 1,966-lf. Completion of the original TBM tunnel added 1,000-lf., then an additional 660-lf. was added by change order.

In February 2020, SEI beat their record on the fourth and final curved alignment of 2,304-lf. This tunnel was the most complex, had the highest amount of water pressure, and featured a 1,975-lf. straight section with a 329-lf. curve and 1,929-ft. radius at the finish.

OUTCOME

- Two curved Akkerman MTBM records achieved
- Longest curved microtunnel using the AZ100 TGS system established
- Demonstration of superior microtunneling skill in a variety of complexities

