



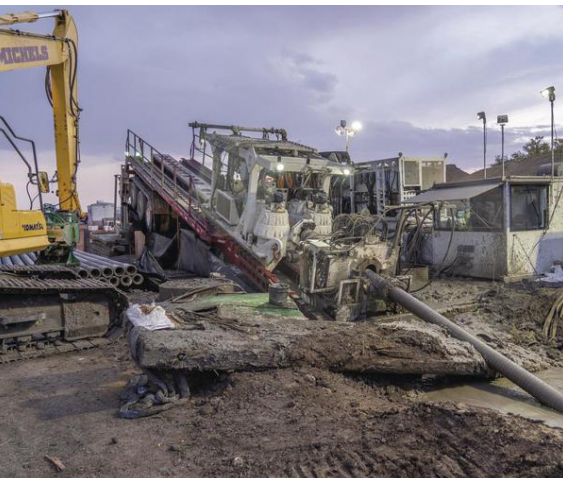
TRENCHLESS SOLUTIONS

WE DO THAT ... & MORE

## Building & maintaining the world under your feet

Michels Trenchless, Inc. provides the safest, most reliable solutions for the installation and rehabilitation of underground infrastructure with minimal surface disruptions. Being the premier trenchless company in North America and internationally requires a balance of experience and enthusiasm. Our leaders, managers and field personnel have amassed an extensive resume of successful projects for many industries, including energy, energy transition and renewables, transportation, and water & wastewater. Regardless of whether we are working close to home or thousands of miles away, our trained crews deliver consistent quality, safety and performance.





## NEW INSTALLATION

### DIRECT PIPE®

Direct Pipe® combines horizontal directional drilling and microtunneling techniques. After a microtunnel boring machine coupled with the pre-welded and pre-inspected pipe is launched from the surface or a shallow pit, we use tooling to track orientation and location.

- Water bodies
- Levees
- Rail tracks
- Roads
- Utilities

### HORIZONTAL DIRECTIONAL DRILLING

Horizontal directional drilling (HDD) is an established trenchless pipe installation technique. We have become a world leader in HDD by designing, building and mastering the use of powerful rigs to place utility lines substantially deeper than conventional trench construction, providing significant cover for crossings under waterways, existing utilities and underground structures.

- Land-to-land crossings
- Land-to-water crossings
- Water-to-water crossings
- Crossings in any ground condition

### MICROTUNNELING

Microtunneling is a highly accurate and versatile way to build tunnels upwards of 10 feet in diameter. Microtunneling uses a steerable, remotely controlled machine to mine tunnels in all soil conditions and groundwater levels.

- Underground utility crossings
- Marine outfalls
- Shore approaches
- Offshore wind landfalls

### TUNNELING

Tunneling is a highly automated process for mining underground passageways in conditions ranging from hard rock to soft water-bearing ground. Our tunnel boring machines (TBMs) are customized for unique project requirements.

- Earth pressure balance TBM
- Slurry TBM
- Hard rock TBM
- Roadheader/digger shield
- Geodetic surveying
- Shafts and mass excavations
- Drill and blast services

### PIPE ASSIST

Pipe Assist uses a Direct Pipe® thruster with up to 750 tonnes of force to support an HDD rig during pullback of a large, heavy pipe string. The thruster is fitted concentrically around the pipe, ready to be quickly engaged.

- Locked pipes
- Immobilized pipes
- Pipes needing assistance to avoid being damaged

### AUGER BORING

Auger boring allows a casing pipe to be jacked into place under railroads, roads, runways, property, other utilities or environmentally sensitive areas. Highly technical variables allow auger boring to be completed within line and grade industry tolerances in a variety of soil conditions.

- Water
- Storm drain
- Sewer
- Electrical



# REHABILITATION

## CURED-IN-PLACE PIPE

Cured-in-place pipe (CIPP) lining is an established, yet evolving technique for installing a fully structural pipe within an existing pipe to add an additional 50 years to its design life. Resin-impregnated liners are inserted into a pipe and cured by water, steam or ultraviolet (UV) light.

- Sanitary & storm sewers
- Potable water pipes (NSF 61-approved)
- Force mains
- Laterals and culverts
- Pressure pipes
- Short liners

## SPRAY-IN-PLACE PIPE

Spray-in-place pipe (SIPP) lining is a versatile method for extending the life of deteriorating pipes and structures of many shapes and sizes. Depending on the situation, cement mortar, epoxies, geopolymers and polyureas are applied by mechanical spinning or hand spraying. Suitable for brick, concrete, and corrugated and smooth metal surfaces.

- Utility maintenance holes
- Raw water pipes
- Sewer mains
- Culverts
- Potable water pipes (NSF 61-approved)
- Irregular shapes and bends

## SLIPLINING

Sliplining is a long-standing, fully structural way to rehabilitate pipes by creating a pipe within a pipe. A new sewer pipe is pushed or pulled into an existing, deteriorating pipe. Then, the annular space is chemically filled and the ends are sealed.

- Sanitary sewers
- Laterals
- Storm sewers
- Culverts

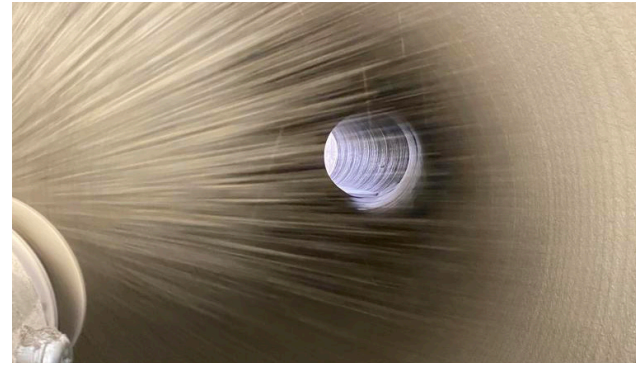
## CHEMICAL GROUTING

Installing chemical grout in voids and soil outside of pipes and structures stabilizes pipes and eliminates infiltration. When used in conjunction with other pipe rehabilitation methods, it reduces inflow and infiltration rather than relocating it.

- Sewer mains
- Utility maintenance holes
- Laterals

## SEWER INSPECTION, CLEANING AND DOCUMENTATION

Routine inspection, cleaning and documentation are part of everyday sewer maintenance. Wastewater recycling sewer cleaning trucks pressure wash pipes to prepare for inspection and rehab processes.



## Preconstruction services

Clear communication and collaboration between a contractor, owner and design engineer from preconstruction through closeout ensures an understanding of all project goals and expected outcomes. Using an alternative delivery model offers many benefits, including constructability review and recommendations, improved risk management, project coordination and innovation.





## We Do That

New installation

Rehabilitation

## ... & More

Constructability recommendations

Design engineering

Drill fluid management

Marine support

Shafts and cofferdams

Site preparation & matting

Pipe assembly

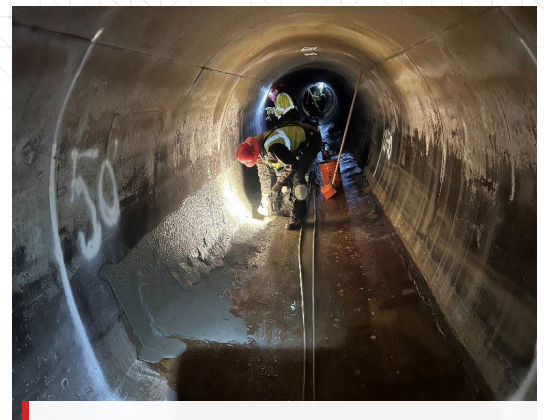
Pipe pullback support



### North Bakken Expansion HDD

Watford City, ND  
2021

- Horizontal directional drill installation
- 15,426 feet of 24-inch pipe
- Gyroscopic tracking and full-time surveyors
- 2022 Trenchless Technology Project of the Year



### First Aqueduct Tunnels Rehabilitation

San Diego, CA  
2022-2023

- Potable water tunnel structural repairs
- Geopolymer spray in two tunnels (3,600 feet)
- FRP sliplining in one tunnel (3,600 feet)
- Completed during three 10-day shutdowns



## WE DO THAT ... & MORE

### Commercial diving

Did you know Michels team includes commercial divers, support crews and vessels? Construction is not limited to dry land. Neither are we.



### Tyson's to Idylwood Path A

Falls Church, VA  
2021-2022

- Direct Pipe® installation
- 3,376 feet of 42-inch casing
- Vertical and horizontal curves
- HDPE casing and 230kV cable conduits



### Northern Interceptor Sewer Rehabilitation

Guam  
2018-2020

- UV cured-in-place pipe (UV CIPP)
- 45,000 feet of sanitary sewer pipes
- 18-inch to 36-inch diameters
- 2020 Trenchless Technology Project of the Year

**MICHEL'S**<sup>®</sup>  
TRENCHLESS, INC.

[www.Michels.us](http://www.Michels.us)

An overview of the collective strength of the **MICHEL'S** Family of Companies



8,000 people strong



18,000 pieces of equipment

1959

founded in



50+ locations globally



ENR's Top 400 Contractor's List

Visit our website to learn more about our trenchless solutions.

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