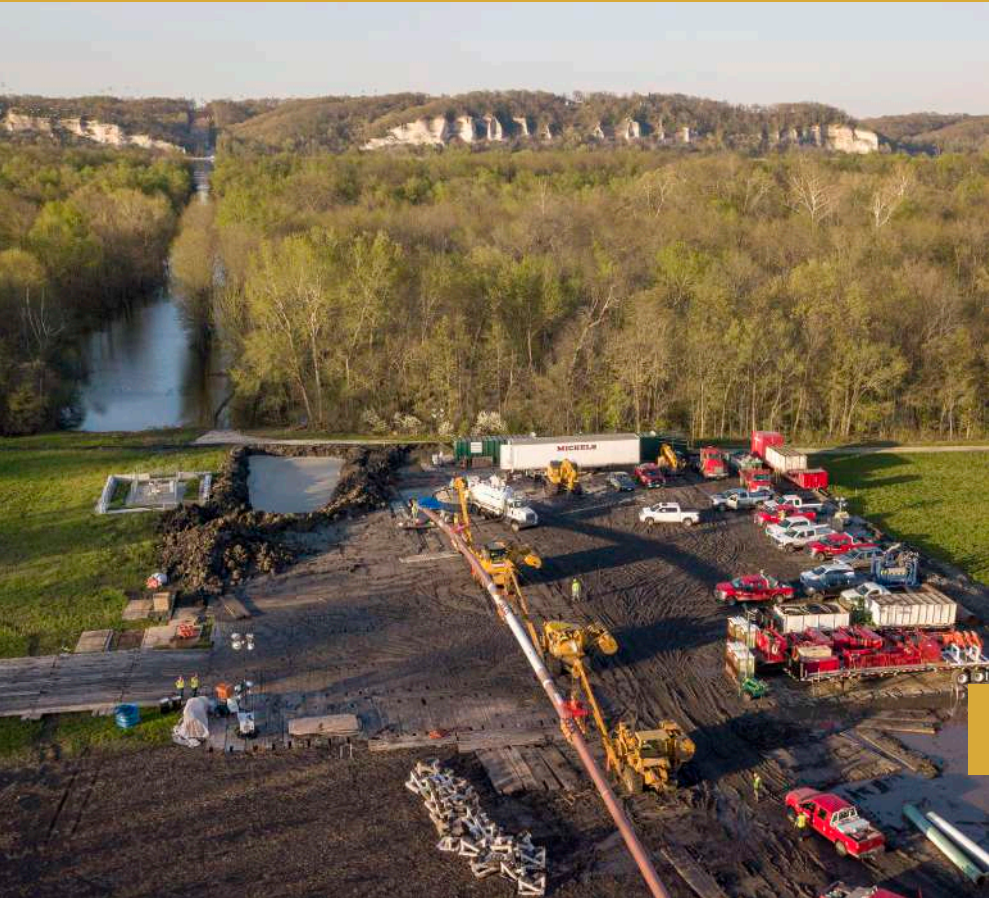


Trenchless Solutions



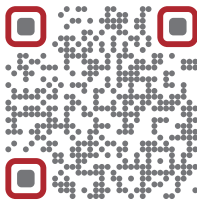
Services Provided:

- Trenchless crossing design
- Design review
- Feasibility assessment
- Pipe stress analysis
- Hydrofracture analysis
- Construction cost estimating
- Permitting support
- Contract documents
- Lift plan development
- Construction monitoring
- General consulting

Pioneers of Trenchless Engineering & Design

J.D. Hair & Associates has defined the industry standard for engineering excellence in trenchless construction for more than 35 years. By focusing exclusively on trenchless installations, we provide our clients with practical solutions based on decades of experience. This experience allows us to produce trenchless crossing designs that can be efficiently executed in the field.

Our people balance innovation and constructability to expand trenchless infrastructure capabilities. We approach projects with a safety-forward focus, an abundance of practical and theoretical knowledge, and a desire to take trenchless construction to new places.



Trenchless success begins with design.

Contact us to get started.

Project Experience



NEXUS Gas Transmission *Michigan and Ohio, 2015 – 2018*

This 36-inch pipeline extends roughly 255 miles across Michigan and Ohio, delivering an estimated 1.5 billion cubic feet of natural gas per day. The pipeline route crosses many notable water bodies and roadways, requiring 18 HDD installations.

J.D. Hair & Associates was responsible for design and construction monitoring on all HDD crossings.



Port of Tacoma LNG Extension *Tacoma, WA, 2016 – 2017*

Customer growth throughout the greater Tacoma area was straining the natural gas system. Puget Sound Energy proposed a liquefied natural gas (LNG) facility at the Port of Tacoma to supply domestic customers and provide fuel for maritime vessels traveling between the Port of Tacoma and Alaska. The upgrade required installing approximately 4 miles of 16-inch natural gas distribution pipeline in the cities of Fife and Tacoma.

J.D. Hair & Associates provided design and construction monitoring services for five HDD installations traversing numerous utilities, heavily traveled port roads, and Interstate 5.



Line 3 Pipeline *North Dakota, Minnesota, and Wisconsin 2014 – 2021*

Line 3 is a 1,097-mile crude oil pipeline that extends from Edmonton, AB, to Superior, WI. Initially built in the 1960s, the pipeline needed to be upgraded to ensure the reliable delivery of crude to U.S. refineries while meeting the highest safety and environmental standards. The U.S. portion replaced 364 miles of existing 34-inch diameter pipe with new 36-inch pipe.

J.D. Hair & Associates was involved in the project from its inception, reviewing numerous potential crossing locations, and ultimately providing designs and associated calculations for 23 HDD installations. J.D. Hair & Associates directly interacted with regulatory agencies during the permitting phase and provided remote pilot hole monitoring services during construction.

J.D. Hair & Associates has designed some of the most significant & challenging trenchless installations ever completed.