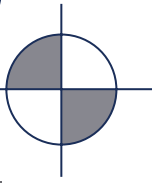


# KILDUFF

UNDERGROUND  
ENGINEERING, INC.



535 16th Street, Ste. 605  
Denver, CO 80202  
[www.kilduffunderground.com](http://www.kilduffunderground.com)





# About KUE

Kilduff Underground Engineering (KUE) was established in 2014 by Todd Kilduff, PE, to support contractors, A/E firms and owners. The firm specializes in underground design with a specific focus in the design, inspection and rehabilitation of tunnels with sizes ranging from 12-inches up to 60-feet in diameter. KUE is capable of designing tunnels utilizing all available technologies to excavate and support the proposed opening. Additionally, the firm provides standard geotechnical design services, deep excavation support designs (SOE), claims support, construction management services, as well as designs, installs and monitors geotechnical instrumentation.

Todd has spent over 10 years of his career working on the design side for engineering firms, and an additional 10 years working for large general contractors, estimating and managing the construction of underground projects. KUE's strength lies in it's ability to be equally familiar with both the design and construction aspects of underground projects. Located in Downtown Denver, KUE consists of a technical staff of three PE's, four EIT's and a survey crew. The firm is currently licensed in CO, TX, WY, MT, NV, UT, ID, OR, WA, NM, NE, MD, VA, NY, NJ, PA and MA, is insured, and provides services throughout North America.



DESIGN SERVICES



FIELD SERVICES



COST & MANAGEMENT



CLAIMS ANALYSIS

## Support of Excavation

KUE has extensive experience in regard to the construction and design of excavation support systems. Each project requires its own type of support structure, and Mr. Kilduff understands the excavation utilizations and structural properties of each available system. The firm specializes in a number of methods that have been in practice for decades, as well as new technologies.



Edison Pump Station, NJ



Tarrytown Force Main, NY



Catskill Aquaduct, NY



Conduit 16 Highway 58, CO

### DESIGN SERVICES

- Design Calculations
- Numerical Modeling
- Shop Drawings
- Instrumentation & Monitoring
- Load Testing
- Construction Oversight

### EXCAVATION SUPPORT METHODS

- Soldier Piles & Lagging
- Sheeted Excavations
- Braced Excavations
- Diaphragm Walls
- Jet Grout Shafts
- MSE Walls
- Tie Back Walls
- Secant/Tangent Pile Excavations

### KEY PROJECTS

- 9th Street Storm & Sewer - Brooklyn, NY  
Design of 3 shafts for installation of a 42" RCP Sanitary Sewer
- Upgrades to Edison Pump Station - Edison, NJ  
55' Deep Excavation w/ Sheet piling and Tie-Backs
- Tarrytown Force Main - Tarrytown, NY  
Design of Trench Excavation Support
- 7-Line Extension - New York, NY  
Design of 40' x 40' Shaft - 100' deep
- NYCDEP Gowanus Facility Upgrades - Brooklyn, NY  
Design of 30' OD MTBM Launch Shaft
- Conduit 16 Highway 58 Shafts - Golden, CO  
Design of multiple 40' x 16' shafts, 30' to 55' deep

KUE & Todd Kilduff have been involved in the design and construction of large diameter tunnels for over 25 years. Senior Staff are members of the Underground Construction Association (UCA), the Society of Mining Engineers (SME) and are also members of the International Society of Explosive Engineers (ISEE). Mr. Kilduff has authored several publications on the topic of large diameter tunnel construction.

On the Construction side, Todd has worked as a Project Manager and Estimator for some of the largest general contractors in the industry. During this time, he has managed Tunneling Contracts ranging in diameter from 8 to 58-feet with contract values from \$5M to \$65M. Todd has extensive experience constructing various means and methods of tunnel excavation and support systems. He has developed and managed schedules and budgets as well as been responsible for the safety aspects on tunneling projects.

On the design side, Todd has extensive experience in ground characterization and predicting ground behavior with the performance of proposed tunneling methodologies in mind. He has designed tunnel support systems utilizing rock bolts, shotcrete, steel sets and cast-in-place concrete linings.



Newton Willows, UK



CDOT Twin Tunnels, CO



NYCT 7-Line Extension, NYC



Drummanard Tunnel, KY

## DESIGN SERVICES

- Pre-Bid Planning
- Blast Plans & Vibrations
- Initial Support Systems
- Ground Behavior Prediction
- Settlement Analysis
- Schedule & Costing

- Colorado Springs Utilities, Stanley Canyon Tunnel Rehabilitation - Colorado Springs, CO
- SFPUC, Hetch Hetchy Mountain Tunnel Inspection & Rehabilitation - Tuolumne, CA
- CDOT Twin Tunnels East & Westbound - Idaho Springs, CO
- 7-Line Extension Site J, Declined Tunnels - New York, NY
- East Side Access - New York, NY
- Second Avenue Subway - New York, NY

## DESIGN SERVICES

## Trenchless Technologies

KUE has been involved with the design, construction and management of Trenchless Projects for over 20 years and Mr. Wilkinson was the former General Manager of EURO Iseki and has over 35 years experience with micro-tunnels. Beginning in 2002, Todd Kilduff served as a Project Design Engineer for the planning and design of a large sewer project with thousands of feet of pipeline that utilized multiple trenchless technologies.

Following completion of the design work he later went to work for the sewer contractor awarded the project and served as the Project Manager during construction. The experience resulted in an intimate understanding of the design and construction aspects required to plan and construct trenchless projects.

Since that experience, Mr. Kilduff has been involved in the design and/or direct construction of over 50 trenchless projects with varying methodologies. He has also been involved in over a dozen claims providing analysis and expert testimony. Todd Kilduff is a current member and former executive of NUCA, NASTT and has authored several papers on Trenchless Design & Construction.



The Foundry, CO



40th & Blake, CO



30th Street Rock Tunnel, NYC



Southern Delivery, CO



Meadowmere P.S., NYC



# Geotechnical Instrumentation & Monitoring

Mr. Kilduff has over 20 years' experience with the planning, installation, implementation, interpretation and reporting on instrumentation and performance monitoring programs for underground projects. He is familiar with the installation of various types of instruments such as: observation wells, vibrating wire piezometers, inclinometers, extensometers, convergence, geophone vibration sensors and survey prisms measured by traditional surveying methods and/or with an automated mechanical total station (AMTS). KUE is capable of providing a turnkey service from design to implementation for geotechnical instrumentation programs.

## RELEVANT PROJECTS

- Central 70 - Denver, CO (2019 - Present)
- Globeville 3 Outfall Project - Denver, CO (2018)
- Canal Interceptor Project - El Paso, TX (2018)
- Conduit 16 Raw Water Pipeline - Golden-Lakewood, CO (2017-2018)
- Little Dry Creek - Westminster, CO (2017-2018)
- Orange Zone Pipeline - Lafayette, CO (2017)
- Catskill Aqueduct Project - Highlands, NY (2015-2016)
- Twin Tunnels West Bound - Idaho Springs, CO (2014)

## SERVICES PROVIDED

- Instrumentation Plans
- Installation
- Measurement & Reporting
- Settlement
- Lateral Deformation
- Convergence
- Vibration Monitoring



Geotechnical Drilling



Surveying



Geotechnical Instrumentation



Construction Monitoring

# Dewatering System Design

Todd has more than 20 years' experience with the planning, design and implementation of dewatering systems for underground projects. In regard to design, Todd has performed geotechnical investigations for site characterization including hydrogeological evaluations for dewatering purposes and he has designed dewatering systems for shafts, tunnels and deep excavations. He is experienced in performing calculations to estimate hydraulic conductivity ( $k$ ), total and partial system flow ( $q$ ), drawdown ( $h$ ), and radius of influence ( $r$ ).

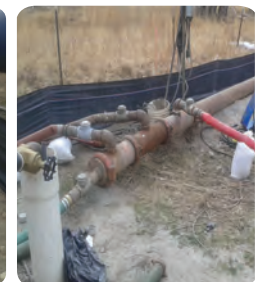
Additionally, Todd has evaluated project sites for potential settlement as a result of dewatering the ground. System designs have been performed with anticipating the use of deep wells, well points and jet educator systems as well as sump pumping. In regard to construction, Mr. Kilduff has worked with reputable dewatering contractors, helped facilitate dewatering system installations and oversaw the construction, maintenance and decommissioning of various dewatering systems.

## RELEVANT PROJECTS

- Weld County - Mead, CO (2019)
- Adobe Creek Dam - Pueblo, CO (2018)
- Bellvue WTP - Greeley, CO (2018)
- Conduit 16 Replacement Pipeline, Denver Water - Golden, CO (2017-2018)
- Ridgegate Pipeline, Happy Canyon Trenchless Crossing - Parker, CO (2017)
- Catskill Aqueduct Project - Highlands, NY (2015-2016)
- Tarrytown Force Main - Tarrytown, NY (2015)
- Poseidon Desalination Plant, Faraday Launch Shaft - Carlsbad, CA (2014)



Conduit 16, CO



Ridgegate Pipeline, CO