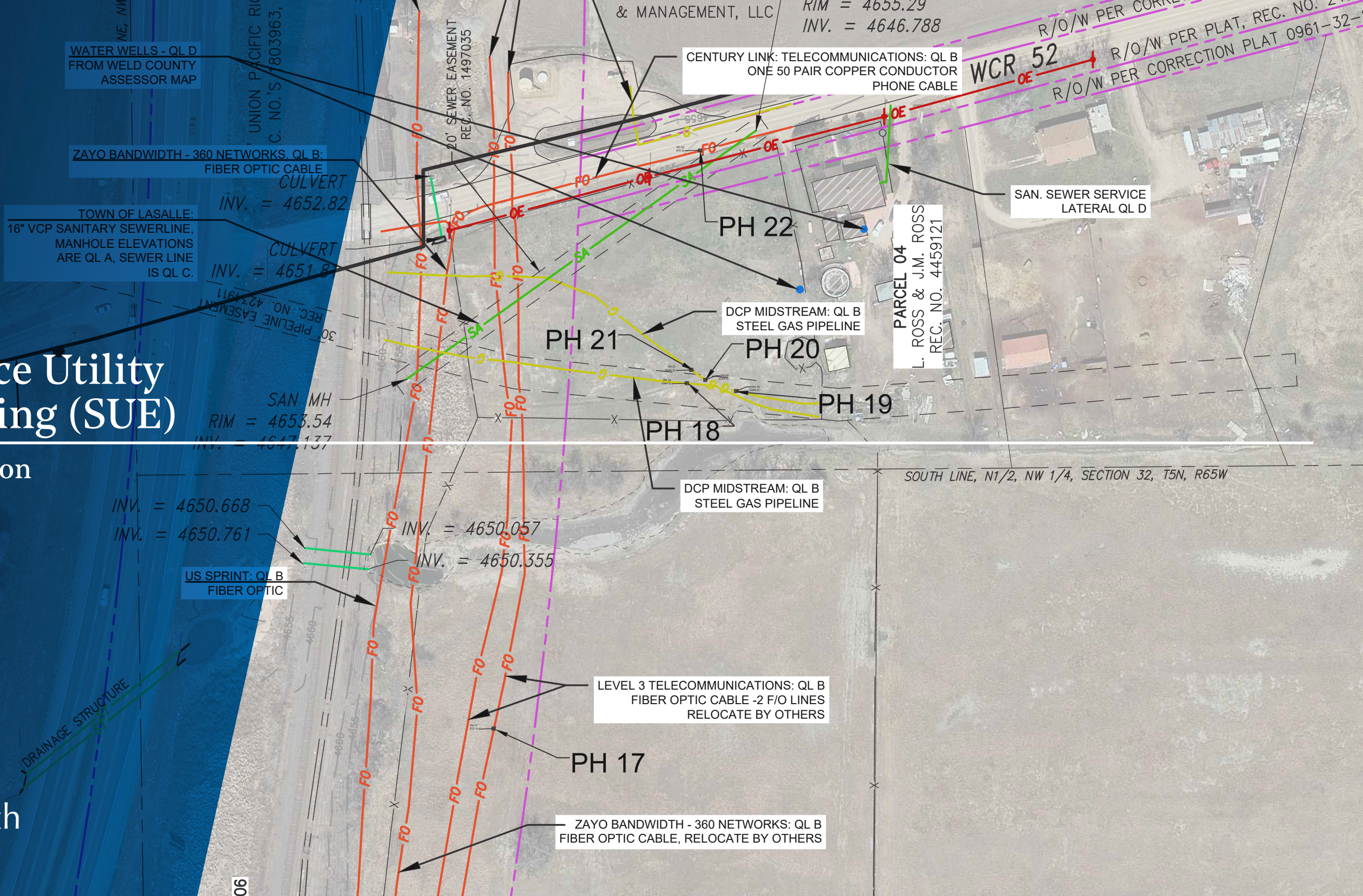


Subsurface Utility Engineering (SUE)

Colorado Region



In Colorado and Beyond

What began in the late 1800s as a one-man survey firm has since developed into a nationwide, full-service consulting firm. Farnsworth Group employs nearly 500 team members nationwide, providing multi-discipline services in engineering, land surveying, asset management, and architecture. As a multi-discipline firm, our versatile staff is able to serve clients across the state.

Farnsworth Group has been providing Subsurface Utility Engineering (SUE) services since the Colorado law became effective in August 2018. Our survey staff has been integrating subconsultants who perform utility locating (designating) and potholing services that comply with the ASCE 38 standards routinely on topographic design surveys for years, even prior to the 2018 law. Since the implementation of the Colorado SB 18-167, our surveyors have collaborated with our in-house utility engineers, teaming partners, and specialized underground utility locating subconsultants to provide fully compliant SUE services.

Our team has been including utility designation and test holes into our utility and road designs since 2005.

SUE SERVICES /

- 811 Notification for SUE Projects
- Subsurface utility locating and designating in accordance with Colorado Law SB18-167 quality level requirements
- Survey for located utilities and test holes
- Detailed utility mapping
- Provide pdf and AutoCAD drawings for all located utilities and test holes
- Engineer-stamped report and plans detailing SUE investigation findings



Which Colorado Projects Require an SUE Investigation?



CONTRACTS WITH A **PUBLIC ENTITY**
(INCLUDING SPECIAL DISTRICTS)



and INVOLVES PRIMARILY **HORIZONTAL CONSTRUCTION**
(NOT BUILDINGS)



and HAS AN EXCAVATION FOOTPRINT THAT EXCEEDS TWO FEET IN DEPTH FOR A CONTIGUOUS **1,000 SF**



Or... INVOLVES **UTILITY BORING**









and REQUIRES THE DESIGN SERVICES OF A LICENSED **PROFESSIONAL ENGINEER**



What is required for an SUE Investigation to comply with the Colorado legislation?

At the project owners' expense, the licensed professional engineer is responsible for:

-  Notifying impacted utility and property owners in the project area that the utility investigation is taking place.
-  Obtaining existing utility information regarding utilities in the area that will be excavated.
-  Utility location information for all utilities at ASCE 38 Quality Level B unless the professional engineer gives a reason for not achieving that Quality Level.
-  Meet or exceed Quality Level A at the point of potential conflicts with the installation of a gravity system or the professional engineer provides a reason for not achieving Quality Level A.
-  Include utility information in the plans and specifications for the project so that the contractor is informed regarding the location of existing utilities.
-  The plans and specifications must be stamped by a licensed professional engineer.

REQUIRED DELIVERABLES

- SUE Report
- Utility Conflict Matrix
- Test Hole Data Sheets
- Stamped and Sealed Plan Set
- CAD File



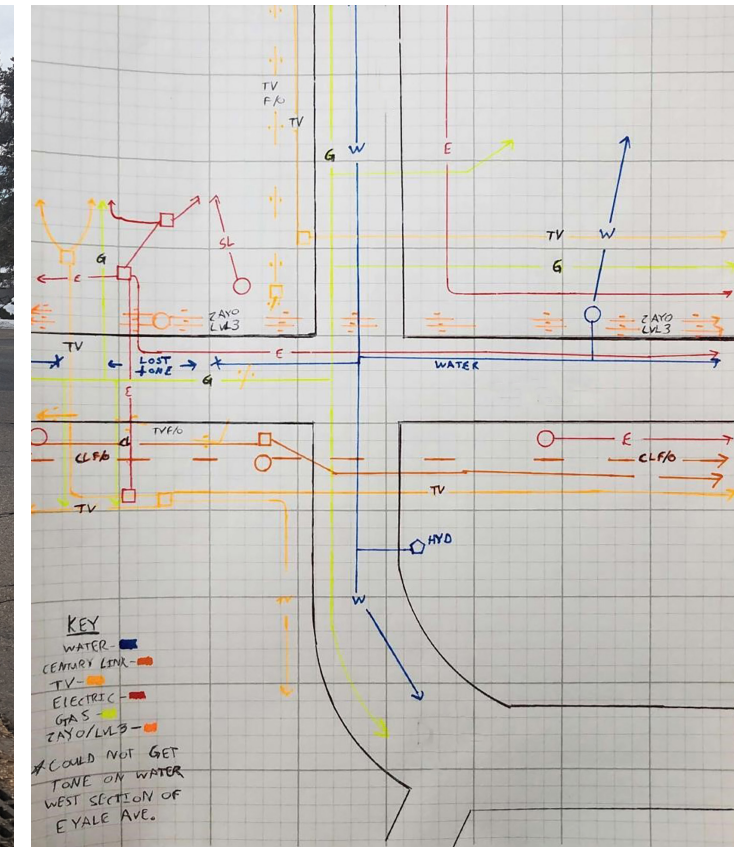
What is involved in a SUE Investigation?

TWO-DIMENSIONAL QUALITY LEVEL B DATA ACQUISITION

- ✓ Utility locator procures existing utility information by contacting 811, utility owners, and necessary entities
- ✓ Farnsworth Group engineers and surveyors and utility locator review the existing utility records
- ✓ Utility locator uses electromagnetic and other geophysical technologies to locate underground utilities
- ✓ Utility locator marks the location of existing underground utilities
- ✓ Farnsworth Group surveyors survey the location of the marked utilities
- ✓ Farnsworth Group surveyors and engineers (and/or teaming partners) collaborate with the utility locator in the field to ensure accuracy and completeness of existing utility information
- ✓ Farnsworth Group surveyors create a CAD basemap including existing utility information
- ✓ Farnsworth Group engineers prepare and certify the Quality Level B SUE report and submit the report along with the CAD drawings of the existing utilities to the client.

THREE-DIMENSIONAL QUALITY LEVEL A DATA ACQUISITION

- ✓ Once the area to be excavated is determined, following preliminary design, Farnsworth Group engineers prepare a test hole plan to determine the verifiable horizontal and vertical locations of utilities that could potentially conflict with the design.
- ✓ The utility locator uses vacuum excavation methods (test holes) to uncover the utilities.
- ✓ Farnsworth Group staff survey the test hole locations as well as the horizontal and vertical location of the existing utility and collect additional information including photographs and pothole log documentation
- ✓ Farnsworth Group surveyors update the CAD drawings with the new data.
- ✓ Farnsworth Group engineers (or teaming partners) review the data and prepare and certify the Quality Level A report and plans.
- ✓ The report along with the CAD drawings are submitted to the client.



CDOT Expertise

Farnsworth Group is currently prequalified to perform both surveying and SUE services for the Colorado Department of Transportation. Farnsworth Group has served CDOT as a client since 1998. We understand what it takes to meet standards and endeavor to exceed expectations on every project.

In the past ten years, we have held Non-Project Specific Land Survey and Right of Way Contracts in Regions 1, 2, 3 and 5. Two of our project managers worked directly for CDOT prior to joining the firm. We have built our legacy of serving CDOT by staying in close contact, and providing quality, timely, and cost-effective services. Our team doesn't stop until the client is satisfied.

REPRESENTATIVE PROJECTS /

- Larimer County, State Highway 1 and CR 54 (Douglas Road) Traffic Signal Design
- Weld County Road 39
- CDOT Region 5, Chain Stations
- I-70 Minor Structures
- CO 82 Glenwood Springs Traffic Signals
- CDOT Region 3, Garfield County Signal Replacements
- SH 92 Improvements, Rogers Mesa



What Sets Us Apart 14

We know there are many firms providing engineering and surveying services in Colorado and across the nation. The following are what set us apart from competitors:

- Four Offices in Colorado: Denver, Durango, Colorado Springs, and Fort Collins
- Quality and Responsiveness - these aren't just buzz words, but are part of our process and client commitment
- We provide SUE services for our own infrastructure design projects. Additionally we support many other engineering firms by providing our survey and SUE services.
- We have in-house engineers that are experienced in SUE and will certify the findings to the Quality Levels required by ASCE 38-02 and S.B. 18-167. Also, our survey group can support your SUE engineer by mapping and documenting the location of utilities.

Finally, our **people, passion** and **performance** set us apart. This is more than a tagline, it's how we get things done.

We encourage you to give us a call and get to know us, we think you'll be glad you did.



People. Passion. Performance.

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