Kleinfelder provides solutions in:

**Pipeline Engineering**
- Plan/Profile/Engineering Design
- Route Selection
- Soil and Erosion Control Plans
- Pipe Stress Analysis
- Electronic As-Builting
- AC/DC Interference: Assessment and Mitigation
- NTSB Investigation Response Training
- Corrosion Control/Cathodic Protection Design

**Geotechnical Engineering/ Foundation Design**
- Site Characterization
- Site Grading/Foundation Analysis
- HDD Design Support

**Integrity**
- Piggability Evaluations
- Retrofit Design
- ILI Support

**Compressor Facility Design**
- Site Selection and Permitting
- Site Survey and Design Layout
- Grading and Surface Water Engineering

**Trenchless Technology**
- Constructability
- Knowledge of Local Contractors Systems
- Feasibility of Technology
- Engineering Design/Risk Analysis
- Inadvertent Return Analysis
- Pipe Stress Analysis

**Environmental Planning and Permitting**
- Upfront Constraints Analysis and Project Planning
- Wetland and Stream Delineation and Permitting
- Cultural Resources
- Threatened and Endangered Species
- Certificate of Public Convenience and Necessity (CPCN) Applications to the CPUC
- Other Trustee/Responsible Agency Coordination and Permitting
- FERC, NEPA, BLM, and BIA Permitting

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*As a global provider of multi-faceted architecture services, engineering, and science, Kleinfelder solutions support every phase of a project, helping you reduce time, cost, and risk, while improving the efficiency of your processes and operations.*
Solutions cont’d:

**Biological/Compliance Monitoring**
- Leading Proactive and Preventive Measures to Avoid Construction Non-compliances
- Workers Environmental Awareness Program (WEAP) Training and Education, and Field Oversight

**Project Controls**
- Critical Path Scheduling
- Earned Value reporting
- Resource forecasting and estimate to complete
- Risk analysis and mitigation
- Collaboration website

RESPONSIVE
Timely delivery is derived for most services from scale, and for others it is proximity to the work. Kleinfelder understands the difference and has evolved its delivery systems to include centers of excellence for services requiring scale and placement of personnel and offices where our clients need local expertise and “boots on the ground”. Kleinfelder has provided responsive engineering, scientific and architectural support to our natural gas clients in the San Juan Basin, Piceance Basin, Permian Basin, Williston Basin, Barnett Shale, Utica Shale, and Marcellus Shale since 1989, and to all our clients since 1961.

RELIABLE
Kleinfelder dedicates an account manager to each of our clients, and assigns an experienced, PMQS-certified project manager to lead the service delivery team. This continuity is why Kleinfelder has contributed to the success of our clients with hundreds of miles of midstream pipeline under permitting and design; pipeline projects completed through procurement, including construction drawings and bidding assistance; and numerous compressor, fractionation, meter and regulating, and LNG facilities successfully sited, designed, and under construction.

Partial client list:
- Andeavor
- Chevron Pipeline Company
- Colonial Pipeline
- DCP Midstream
- Dominion Energy
- Kinder Morgan
- Magellan Midstream Partners
- Occidental
- Pacific Gas & Electric Company
- Piedmont Natural Gas
- Sacramento Municipal Utilities District
- San Diego Gas & Electric
- Southern Company Gas
- Xcel Energy Services
- Williams

![Carrizo Wash Pipeline](image)

![Major basins/gas plays versus Kleinfelder offices](image)