



KARL KLUGE

SENIOR DESIGN ENGINEER, SENIOR CONSTRUCTION MANAGER AND SENIOR CONSTRUCTION OBSERVER



EDUCATION

B.S.E.T., Civil Engineering Technology, Structural Option

Wentworth Institute of Technology (1980)

A.E., Civil Engineering Technology, Construction Option

Wentworth Institute of Technology (1978)

REGISTRATION

WASH-Erosion Control Certification Training, Boulder County (2006, 2009)

Certificate, Basic Principles of Occupational Safety

Southern Maine Technical College (1998)

Completed Auto CAD 2D and 3D courses
Southern Maine Technical College (1997)

Complete Civil 3D Fundamentals (2016)
Comm-Tech – Auto Desk Training Center

PCI-Precast/Prestressed Concrete Institute Technician/Inspector

Level I & II (1992)

PROFESSIONAL EXPERIENCE

Mr. Kluge has spent the last 20 years with RGA as a design engineer, AutoCAD technician, construction manager, and senior construction observer of water, sanitary and storm sewer utilities, street construction, water tanks, diversions dams, bridges, water and wastewater treatment facilities, effluent pond lining, CIPP lining, storm water structures and erosion control features. Responsibilities include contract document composition, administration and compliance, project layout and design, plan review, development review, including FDP, plats and easements, construction and engineering cost estimates, bidding services, pay applications and change order processing, daily documentation, standard and detail updating and coordinating construction to final completion and warranty acceptance.

Mr. Kluge has provided field engineering and design for projects with budgets over \$10 million and specializes in reinforced concrete, precast/pre-stressed and post tensioned concrete, structural steel, pressure piping and supports, prefabricated metal buildings, drilled piers and caissons, precast piles, steel H and sheet piles, soil densification, pressure grouting, foundations and retaining walls, historic and industrial building restoration, timber and masonry building and bridge construction.

WATER TRANSMISSION

- *2018 Water System Improvements, Buena Vista, Colorado.* Design Engineer on 4 fire hydrant additions to the system, 410 LF of new 6" DI pipe water line and 750 LF of replacement of existing water line with 6" DI pipe. Work included 21 water service re-connections, curb, gutter and sidewalk replacement, and 3,600 SY of asphalt pavement.
- *2018 S. Pierson Street Water Main Replacement Project, Southwest Metropolitan Water and Sanitation District, Littleton, Colorado.* Design Engineer, Field Engineering, and on-call observer for the replacement of 960 LF of 8" water main with 3 water main and 23 water service re-connections. The work was subjected to Denver Water approval. Miscellaneous other projects included a 4" air vent and vault replacement, a water main connection that consisted of 10", 12", and 16" asbestos pipe (ACP) removal and replacement, fitting and gate valve installations. The project included asphalt patching, milling and street overlay in accordance with Jefferson County.
- *2018 6th Avenue Water Line Improvement, Monte Vista, Colorado.* Design Engineer for replacement of existing waterline, connections, gate valves in an intersection and adjoining side streets.
- *2016-2017 Water System Improvement Projects, Buena Vista, Colorado.* Designer of water line additions, upgrades and replacements within the town. Work deals with CI pipe and subgrade mixed in with boulders.
- *2015 Water and Sanitary Sewer Main Replacement Project, Crestview Water and Sanitation District, Adams County, Colorado.* Designer, Contract and Construction Manager for 3,800LF of 8" and 6" PVC water mains replacement with multiply tie-ins to a 10 "water main and 97 water service reconnections. 950LF of 12" sanitary sewer main replacement, bypass pumping, existing sewer line removal and reconnecting 15 sanitary sewer services. MH removal, replacement and lining. 5000SYs of removal and patch paving. Street roto-milling and a 2" Sx overlay. Miscellaneous concrete sidewalk replacement
- *January 2015-June 2015, Estes Park, Colorado.* Construction Manager and Senior Construction Inspector for flood damage repair projects. Projects included retaining walls and rip rap replacement in Fall Creek and miscellaneous asphalt pavement and concrete replacement projects thought out the Town of Estes Park. Projects follow CDOT, FEMA and FHWA standards.
- *April 2013-December 2014, City and County of Broomfield, Colorado.* Inspector. Part Time County Inspector of developments located in Broomfield County. Inspected sanitary sewer, water, storm lines and structures, and street construction projects. Structures included pond inlets and outlets features, CDOT wing walls, box MHs, inlets and precast box culverts. Inspected over lot grading, subgrade and road base to streets, asphalt pavement, along with curb, gutters and sidewalks and trails.
- *2012-2015 Eagle P3 Fastracks-Northwest Rail Electrified Segment, Denver Transit Partners/Crestview Water and Sanitation District, Adams County, Colorado. 2012- 2015.* Design Reviewer, Construction and Contract Representative for CWSD and Coordinator with DTP/CWSD on 20"and 14" water main and 21" and 15" sanitary sewer main relocations from the proposed electrified rail systems. Miscellaneous items included 980LF of 36" borings and casings for water and sanitary line crossings under creeks and railroad ROWs; landfill relocation for water and sanitary line crossings and a 20" water line crossing above Clear Creek by suspending the water line/casing from an existing 4 span precast concrete bridge.
- *Trailside Academy, Crestview Water and Sanitation District, Adams County, Colorado. 2018-2019.* Design reviewer and on call Field Engineer for sanitary sewer and water main connections and services into the school property. Reviewed architecture and landscape plans.

- *Midtown Development, Filing 1, 2, 3, 4, 5, 6, 7 & 8, Crestview Water and Sanitation District, Adams County, Colorado. 2013-Present.* Design reviewer for the District. Review of the construction water and sanitary sewer plans supplied by the developer. Developed the review and comment letter for correction to the Developer's engineer.
- *2014 Water Main Replacement, Schedule A & B, Crestview Water and Sanitation District, Adams County, Colorado.* Contract and Construction Manager, and Senior Construction Observer for 800LF of 16" and 820LF 6" PVC water mains with multiply tie-ins, including a 16" tie in to a 3.25MG steel water tank and 11 water service reconnections. Miscellaneous items included 1,000 SY of temporary and permanent asphalt patching, painting and weld inspections. Designer of the tank connection.
- *2013 Water Main Replacement, Schedule A & B, Crestview Water and Sanitation District, Adams County, Colorado.* Designer, Auto Cad Reviewer, Contract and Construction Manager, and Senior Construction Observer for 3,600LF of 20", 14", 12", 10", 8" and 6" PVC water mains with multiply tie-ins and 103 water service reconnections. Miscellaneous items included 6,000 SY of temporary and permanent asphalt patching. Work started in the winter and continued to the summer of 2013.
- *2012 Goat Hill Phase 2B Water Main Replacement, Crestview Water and Sanitation District, Adams County, Colorado.* Water main designer, Construction and Contract Manager and Coordinator with Adams County. Contract reviewer and Senior Construction Observer for 5,500 LF of 8" and 6" PVC water main, tie-ins and 123 water services relocations to replace an existing 50-year old CI water main in a residential neighborhood under complete street replacement and storm water system improvements.
- *2011 Water Main Replacement, Crestview Water and Sanitation District, Adams County, Colorado.* Designer, Contract and Construction Manager and Senior Construction Observer for 5,600 LF of 8" and 6" PVC water main and tie-ins and 106 water services to replace an existing 50-year old CI water main in a residential neighborhood.
- *2010 Pecos Street Grade Separation 20" Water Transmission Main Replacement, Crestview Water and Sanitation District, Adams County, Colorado.* District Design Reviewer, Contract and Construction Manager, and Senior Construction Observer for 1,130 LF of 20" DI-restrained water main for relocation around a County Grade Separation over the Union Pacific, Burlington Northern, and Santa Fe Railroads. The 20" water main project includes 150 LF of 36" bore and casing under the railroad ROW and 4 unique tie-ins each completed within 8 hours to have the existing main back in service. Project was completed in April of 2011 due to phasing.
- *ARRA and DOLA 2009 Water Main Replacement, Town of Kremmling, Colorado.* Designer, Senior Construction Observer. Performed construction management, administration, on-call problem-solving, and inspection for 22,000 LF of 8" PVC water main, tie-ins, and 260 water services to replace an existing 50-year old water system and street pavement replacement. Unique features of this project were the unknown locations of the existing 4" and 6" CI waterlines and appurtenances.
- *2009 Water Main Replacement, Schedule A and B, Crestview Water and Sanitation District, Adams County, Colorado.* Senior Construction Observer. Performed construction management and administration services, inspections, daily documentation, and problem-solving for 5,900 LF of 10" and 8" PVC water main and tie-ins and 96 water services to replace an existing 50-year-old line in a residential neighborhood.
- *Lowell Boulevard Water Main Replacement, City of Westminster, Colorado.* Construction Manager and Senior Construction Observer for the replacement of an existing 60-year water main with 1,400 LF of 12" PVC pipe. Miscellaneous items included a valve vault, water services, directional bore, and paving for the trench and street

- *2009 Lowell Boulevard Water Main Replacement, Crestview Water and Sanitation District, Adams County Colorado.* Construction Manager and Senior Construction Observer/Inspector for 4,300-LF of 8" PVC pipe, lateral tie-ins and services to replace an existing 50-year water main on a heavily travelled boulevard that was under construction for street, sidewalk and storm sewer replacement by another contractor.
- *20-Mile Road Effluent and Raw Waterlines, Parker Water and Sanitation District, Colorado.* Senior Construction Observer for 11,600 LF of dual 16" PVC Effluent and 5,500 LF of 24", 16" and 12" PVC Raw Waterlines. Miscellaneous items included 600 LF of 54" diameter tunneling and casing under existing streets.

UTILITIES/TREATMENT/COLLECTION

- *2018 Collection System Improvements Project, Monte Vista, Colorado.* One of the design engineers that worked on sanitary sewer video evaluation for 12,000 LF of 6", 8", 10", and 15" lines for CIPP lining with 186 re-established service connections. Work also included 41 manhole rehabilitation and point repairs. Established a usable city base map of the collection system.
- *2018 W. Parkhill Avenue Sanitary Sewer Main Replacement, Southwest Metropolitan Water and Sanitation District, Littleton, Colorado.* Designer and on-call field engineer and observer of existing 225 LF of 12" VC pipe removal and replacement. Project included asphalt trench patching, milling and street overlay.
- *2018 Annual Cleaning and Videoing and 2018 Annual Root Cutting, Applewood Sanitation District, Jefferson County, Colorado.*
Design Engineer for establishing contract documents and plans/exhibits for bidding. Work continued into construction management and evaluation of videos to update the overall system conditions spreadsheet used to determine the following annual maintenance schedule. Also established manhole observation data sheets for individual manhole evaluation and record.
- *2018 Sanitary Sewer Line Excavation, Point & CIPP Repair, Applewood Sanitation District, Jefferson County, Colorado.* Design Engineering, Construction Manager & Observer for 5 point repairs on sanitary sewer lines and manhole. Work included 4,600 LF of cured-in-place (CIPP) pipe with service reconnections. The work was established from annual system status report, from yearly videos reviews.
- *2018 Sanitary Sewer Rehabilitation, Columbine Water and Sanitation District, Littleton, Colorado.* Design Engineer for 6,600 LF of 8" cured-in-place (CIPP) pipe with 79 services to be reestablished. Work included evaluation of 31 brick manholes and specifying lining rehabilitation.
- *Clear Creek Crossing, Wheat Ridge, Colorado.* One of the Applewood Sanitation District review engineers and construction observers for replacement of District sanitary sewer mains within the development. Work involved monitoring Denver Water 84" conduit crossing.
- *2017, 2018, Applewood Sanitation District, Golden, Colorado.* Perform engineering, plan review, contract document and bid composition for maintenance of the sanitary sewer system. Revise and update District standards and details. Also, the Locate Technician for daily locate requests.
- *2017 Capital Improvement Project, Applewood Sanitation District, Golden, Colorado.* Designer, Construction Manager and Observer for sanitary sewer point repair and CIPP/slip-lining project.
- *2017, 2018 On Call Engineering, Observation and Development Review, Crestview Water and Sanitation District, Adams County, Colorado.* Development reviews and observation of sanitary and

water facilities based off Crestview Water and Sanitation District standards. Provided engineering development of standards and details.

- *2016-2017, Wastewater Treatment Plant Rehabilitation, Fairways Metropolitan District, Boulder, Colorado.* Construction management and observation for the rehabilitation of a 0.17 MGD wastewater treatment plant, tertiary filtration and effluent lift station project. Project included sludge removal, pond grading, synthetic lining and reconstruction of piping and diversion vaults at 2 lagoons, a wetland and a settling pond. Also, work included the construction of the foundation and the pre-engineered/fabricated steel building, preformed payroll verification, interviews, pay application and change order processing.
- *2016 Water Storage Improvements, Jamestown, Colorado.* Construction management and inspection for the complete removal of interior paint and the repainting of a .15MG steel water tank and interior spot coating repair of a .070 MG steel water tank. All coating and disinfection in accordance with AWWA. Also, preformed pay application and change order processing. Work included management of cleaning and disinfection during subfreezing temperatures and coordination with the town.
- *2014, Long Lake Feeder Ditch Diversion Structure Replacement, Denver Water, Denver, Colorado.* On call structural inspector of a steel reinforced concrete diversion dam.
- *Semper Water Treatment Plant Sedimentation Basin Buildings, City of Westminster, Colorado.* Senior Construction Observer and Special Inspector for the construction of two (2) 7,500 SF pre-engineered metal buildings over existing concrete sedimentation basins. Duties included the inspections of the special epoxy paint over the structural steel and the unique HVAC system to minimize the humidity.
- *40 MG Effluent Pond Relining, Stonegate Village Metro District, Parker, Colorado.* Senior Construction Observer for the relining of the pond with a sandwiched liner below the subgrade.
- *93rd and Wadsworth Parkway Interceptor, City of Westminster, Colorado.* Senior Construction Observer for 220 LF of 30" diameter boring and casing and the relocation and improvement to 350 LF of an existing 10" sanitation sewer line.
- *Cherry Creek Diversion Dam, Parker Water and Sanitation District, Parker, Colorado.* Senior Construction Observer/Inspector for a 300' inflatable diversion dam to divert raw water into a pump station to provide water to the Rueter-Hess Reservoir. Construction consisted of subgrade improvements by vibratory installed stone columns, sheet piles, a 30' x 300' concrete apron for the inflatable dam, a 20' retaining and wing walls, a bypass sluice area, grouted rip rap armor, and site restoration in compliance with the Army Corp. of Engineers, with special environmental conditions present. Main duties included the observation and inspection.

TRANSPORTATION – PAVING – STREET MAINTENANCE

- *2018 Birch-Stockton Intersection Project, Gilcrest, Colorado.* One of the designers, reviewers, and construction managers for street, curb and gutter rehabilitation.
- *2016 Town Square Park, Jamestown, Colorado.* Construction management and observation for a central park in the town. Work included observations on concrete foundations and features along with timber retaining walls, trimming, fencing and a timber pavilion.
- *2016 Jamestown Roadway Rehabilitation, Jamestown, Colorado.* Construction management and inspection for roadway rehabilitation after the waterline replacement project. Processed change orders and payment applications.

- *2013 Flood Damage Repair, Town of Estes Park, Colorado. 2013-2015.* Design and Contract Reviewer and on call Senior Construction Observer of the repairs to the structural retaining walls, boulder features in streams, pavement repairs and road construction.
- *City and County of Broomfield, Broomfield Colorado, 2013-2015.* Senior Construction Observer of all public improvements in 9 developments within the City and County ROWs, including sanitary sewer, water, storm sewer, services, curb-gutter, trails, concrete structures and asphalt pavement.
- *Hamilton Place Bridge Feasibility and Construction Cost Study, City of Sheridan, Colorado. 2012 & 2014.* Engineer on the research and cost analysis for the feasibility of rehabilitation of a 2-100' span precast girder bridge constructed in 1965 crossing the S. Platte River.
- *River Point at Sheridan Subdivision, City of Sheridan, Colorado and Sheridan Redevelopment Agency, 2008-2013, Bi Annual Inspections.* Senior Construction Observer and representative of the City and SRA for the inspection of the maintenance and repairs by the Developer of storm and sanitary sewers, roadways, ROW features, detention ponds and drainage swales for Initial and Final Acceptance of a Commercial Development over the former Arapahoe County Landfill.
- *Bear Creek Pedestrian Bridge Replacement, City of Sheridan, Colorado, 2012-2013.* Researcher, Designer, Construction Manager and Senior Construction Observer for the removal and replacement of a 38 years old double tee pedestrian/fork lift loaded bridge with a pre-engineered/fabricated 10' x 70' steel truss bridge with vehicle loading. The deficient bridge was identified and grant money was obtained. Coordinated the temporary relocation of utilities in two phases while the piles were driven and abutments were poured. Final bridge placement and concrete work occurred during the winter and special concrete practices were recommend by RGA and implemented for the completion in the end of January 2013.
- *88th Street and Rock Creek Parkway Roundabout, Town of Superior, Colorado.* Construction Manager and Senior Construction Observer for the removal of a four (4) and 2-lane signalized intersection with a 130' inner circle, 2-lane roundabout with a truck apron, retaining wall, drainage improvements, pattern pavement cross walks, curb, gutters, bike ramps, striping and signage, landscaping, and street lights.
- *Stonegate Market Roads, Phase 3 and Phase 4, Parker, Colorado.* Construction Manager and Senior Construction Observer for subgrade preparations, over excavation, curb gutter and sidewalk concrete paving, asphalt paving, striping and signage, and site restoration for 2,100 LF of District roadways.
- *Stonegate Filing 14A & B Curb and Sidewalk Replacement and Pavement Repairs, NewLand Communities, Parker, Colorado.* Construction Manager and Senior Construction Observer for 800 LF of mountable curb-sidewalk removal and replacement and 1,200 SF of pavement patching and repair and crack sealing to obtain Douglas County final acceptance/full term maintenance.
- *West Interceptor Line, Parker Water & Sanitation District, Parker, Colorado.* Senior Construction Observer for 20,600-LF of 36" and 24" Contech A2000 and 18" PVC pipe for a sanitary sewer interceptor constructed within a 30' easement to the Army Corp. of Engineers Nation Wide Permit #12, with special environmental conditions present. Miscellaneous items included a 245' Steadfast pedestrian steel truss bridge with two (2) 42" steel casings below, 110 LF of 48" diameter boring, a 12" effluent force main relocation, 15" sanitary sewer laterals, and wetland and site restoration.
- *State Highway 52 and Glen Creighton Drive Roadway Improvements, City of Dacono, Colorado.* Senior Construction Observer for subgrade replacement and paving for acceleration and deceleration lanes at the intersection at Glen Creighton Drive. Construction management for CDOT local agency.

- *Sharpe Subdivision Filing 2, City of Dacono, Colorado.* Senior Construction Observer for 3,500 LF of 8" PVC water and sanitary sewer lines, street curbing, subgrade replacement and paving. Miscellaneous items included water and sanitary services and 500 LF of storm sewer and signage and striping.

DEVELOPMENT REVIEW

- *2018 Pomponio Terrace, Filing 3&4, Crestview Water and Sanitation District, Adams County, Colorado.* Review Engineer for the District on water and sanitary sewer lines construction drawings in a development. Water line upgrade also reviewed and observed waterline upgrades along Federal Boulevard. Work included asbestos cement pipe plan review and replacement.
- *2018 Trailside Academy, Crestview Water and Sanitation District, Adams County, Colorado.* Review Engineer for the District on water and sanitary sewer line connection and services into the academy buildings. Review FD Plans, plats and easements, and architecture and landscape plans for District compliance.