

David E. Cooper

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PROFESSIONAL SUMMARY

David is an Idaho licensed professional engineer and has a Bachelor of Science degree in Civil Engineering from the California State University of Sacramento. He graduated in 2011 and has 11 years of engineering consulting experience in the water/wastewater civil engineering industry. He also has an additional 4 years of experience in the government and municipal engineering sectors via student engineering internships. David has been serving the North Idaho region with 7B Engineering since 2020 providing site development, drainage, hydrology/hydraulics, erosion control, floodplain, floodway, road design, cost estimating, construction inspections, feasibility studies, lagoon leak tests, preliminary engineering reports, and regulatory compliance services. David worked for Domenichelli & Associates (D&A) from 2013-2020 and served private entities, municipalities, individual owners, and counties in the California Central Valley, Central and Northern Sierra Nevada, Southern California, and in the California Central Coast regions. David's work at D&A consisted of extensive hydrologic and hydraulic modeling to support bridge and culvert projects, drainage and flood studies, 2D dam breach inundation studies/mapping, and CLOMR/LOMRs for land development projects. Other tasks at D&A consisted of preparing reports, cost estimates, budget tracking, AutoCAD Civil 3D drafting/design, GIS databases and mapping, extensive use of LiDAR and survey data, engineering calculations, design and as-built plans, and corresponding with clients and regulatory agencies. Between 2008-2012 David also held Student Engineering Internships at the Sacramento Regional Wastewater Treatment Plant and with the California State Water Resource Control Board. The internships provided exposure to the interworking's of municipalities and state/federal agencies. During the engineering internships, David was lucky enough to have great mentors that encouraged professional development, provided opportunities for engineering experience, and gave responsibilities. Job duties are discussed in more detail in the Experience section below.

EDUCATION

Bachelor of Science, Civil Engineering

May 25, 2011

California State University, Sacramento

LICENSES

Idaho Professional Engineer, P-20599

Issued: September 21, 2021

Discipline: Civil Engineering

EXPERIENCE

Civil Engineer/Project Manager

August 2020 - Present

7B Engineering, Sandpoint, ID

- Prepared various residential site improvement plans in Bonner and Boundary Counties. Designed and drafted site plans; performed grading analyses and estimates; road design; designed stormwater conveyance, detention, and treatment facilities; determined acceptable erosion control measures based on existing and developed site conditions; prepared building location permits, floodplain development design and permits, elevation certificates, design plans, and design reports; and coordinated with surveyors for topography, driveway alignments, and profiles.
- Developed Lagoon Leak test procedures that were submitted and approved by Idaho DEQ. Upon approval, set up on-site test equipment to monitor and record changes in lagoon wastewater surface levels along with ambient conditions and evaporation. Utilizing IDEQ spreadsheets and guidance documents; analyzed leakage rates, prepared seepage test reports, and compiled submittal packages. Seepage tests were performed for multiple sewer districts to satisfy compliance activity requirements in their respective permits. All seepage tests were reviewed and approved by IDEQ.
- Performed project management and QA/QC roles for the development of a sewer force main extension Preliminary Engineering Report (PER). Worked with staff to develop the preliminary design and ensured that the PER was prepared in compliance with IDAPA rules.
- Performed 2D HEC-RAS analysis of a segment of Deep Creek in Boundary County to evaluate the 100-year flood and 1974 flood of record depths, velocities, and water surface elevations to support design decisions of a residential project.
- Developed a 2D HEC-RAS model of Chuck Slough's watershed which encompasses the majority of Sandpoint, Idaho. This 2D model incorporated soil, land cover, and precipitation to eliminate transferring hydrologic model outputs into the 2D hydraulic model. The 100-year 6-hour and 24-hour duration events were simulated to evaluate water surface elevations in Chuck Slough just upstream of the Highway 2 culverts. The model was used to support design decisions of a floodplain development project due to unknown water surface elevations in Chuck Slough and the culvert restriction at Highway 2.

Staff Engineer**January 2013 – August 2020****Domenichelli and Associates, Inc., El Dorado Hills, CA**

- Performed hydrologic studies through the collection and evaluation of soil data, land cover, precipitation, and terrain data.
- Performed local hydraulic studies for bridge replacement projects with gage data evaluation, hydraulic model development and review, analyzed scour potential, recommended scour countermeasures, and produced Location Hydraulic Study Reports. Steady-state and unsteady-state analyses were performed to compare existing and proposed conditions.
- Performed riverine hydraulic modeling to analyze channel capacities, culvert projects and sizing, stream/river and habitat restoration, fish ladders, energy dissipators, grade control, weirs, scour and scour counter measures, and floodplain/floodway mapping.
- Performed urban hydrology and hydraulic modeling to analyze stormwater collection and conveyance systems, urban stormwater routing, sizing and design of flood control reservoirs and outlet structures, interconnection between urban systems and riverine systems, and floodplain/floodway mapping.
- Worked with U.S. Army Corps of Engineers, Central Valley Flood Protection Board, and Reclamation Districts on bridge and development projects located in the Sacramento-San Joaquin River Delta region.
- Utilized and modified the complex Sacramento County North Delta hydraulic model to analyze potential alternative bridge designs to replace the North Walnut Grove Road Bridge across the North Fork Mokelumne River near Walnut Grove, CA. Analyzed changes to flows and flood elevations upstream and downstream of the bridge as well as changes to neighboring river reaches in the North Delta river network. Presented results and discussed impacts with clients and stakeholders.
- Performed 2D Inundation Studies of hypothetical dam failures with determinations for flood routing, mapping, peak flows, inundation limits, flood depths, velocities, timing, and duration. Collected and reviewed LiDAR data, processed terrain data, created digital elevation models, calculated stage-storage relationships, performed computer modeling of dam failure simulations, prepared inundation study reports, and produced inundation maps. Studies were performed following California Division of Safety of Dams and FEMA P-946 guidelines. Inundation study reports and maps were provided to clients and to the CA Department of Water Resources, Division of Safety of Dams.
- Assisted with water main extension projects by requesting and drafting utility locations, incorporating field survey into AutoCAD drawings, researched and implemented design requirements, drafted and designed new water main and service locations, created meter location sheets, calculated quantities, prepared design plans.
- Performed hydrologic and hydraulic analyses for pre- and post-project conditions on multiple development projects in Sacramento County and City of Salinas, CA. Responsibilities included sizing detention basins and outlet structures, modeling and mapping the 100- and 500-year floodplains, revising the regulatory floodway, and preparing FEMA application packages.

Engineering Student Intern**May 2009 – August 2012****California State Water Resource Control Board, NPDES Unit, Sacramento, CA**

- Processed private, industrial, and municipal Discharge Monitoring Reports (DMRs) and corresponded with NPDES permitted dischargers regarding permit non-compliance and helped permittees with NPDES permit interpretation and monitoring and reporting requirements.
- Updated databases and government information systems, CIWQS and ICIS.
- Assisted state engineering staff and managers with researching toxicity limits of confidential active and inert ingredients in pesticide and herbicide products for the development of state general vector control and aquatic herbicide permits.
- Drafted reports and permit sections for state engineering staff and management. Several reports and permits were presented to the California State Water Board with minor changes/edits by supervisors/managers.
- Assisted unit manager with state NPDES program evaluation by evaluating state and regional board core program workload percentages and personnel years and comparing to current commitments.

Engineering Student Intern**June 2008 – May 2009****Sacramento Regional County Sanitation District, Sacramento Regional Wastewater Treatment Plant (SRWTP) Sacramento, CA**

The Sacramento Regional County Sanitation District (SRCSD) merged with the Sacramento Area Sewer District (SASD) on January 1, 2024, and is now a consolidated sewer utility, called the Sacramento Area Sewer District (SacSewer). During my student internship, I worked at the SRWTP for SRCSD and performed remote site visits to SRCSD and SASD collection system pump stations and projects. Both collection systems conveyed wastewater to the SRWTP, which is one of the largest

wastewater treatment plants in California. The wastewater collection system is the second largest in California serving 386 square miles and has sewer pipes ranging from 1.25 inches to 12 feet in diameter.

- Reviewed as-built drawings to develop an interceptor collection and conveyance system training/reference guide for new maintenance workers to learn about the system and location of junction structures, valve structures, diversion structures, pump stations, and lateral collector tie-ins.
- Used a Sacramento County GIS system, as-built drawings, and water quality documents to crosscheck and verify current and future connections to the interceptor collection and conveyance system.
- As part of the Risk Management Program, conducted field work on-site at the SRWTP and at the Sacramento River outfall facility to label chlorine and sulfur dioxide gas piping networks and appurtenances. Label IDs were incorporated into developing Standard Operating Procedures, location identification for leak reports, leak investigation reports, and preventative maintenance. Identified and documented equipment not represented in contract drawings and coordinated with team members in the field and in weekly meetings.
- Utilized the SRWTP's data acquisition system to analyze flows and percent solids being sent to the solid storage basins (SSB) in order to sequence which SSB would be designated for dredging and land disposal next. Calculations accounted for the previous year's storage volume, the previous year's "harvest" report, quantity of dry tons that were sent in a year, percent volatile solids reduction for one year, and each SSB's storage capacity.

SKILLS

- Microsoft Office: Word, Excel, Project, PowerPoint, Access, Visio, and Visual Basic Applications
- US Army Corps of Engineers, Hydraulic Engineering Center: HEC-RAS, HEC-HMS, HEC-DSS, HEC-DSSVue, HEC-SSP
- Innovyze (formerly XP Solutions): XPStorm
- EPANET 2.2
- AutoDesk: AutoCAD, Civil 3D, Map 3D
- ESRI ArcGIS Desktop: ArcMap 10.2
- QGIS
- HydroCAD Software Solutions
- Federal Highway Administration: HY-8 (Culvert Hydraulics Program)
- Aquaveo/US Bureau of Reclamation: SMS, SRH-2D
- Flow-3D