



**WOOD RODGERS**

City of Emeryville | Qualifications for  
**On-Call Civil/Environmental  
Engineering Consultant Services**

April 29, 2021



Prepared for  
City of Emeryville





April 29, 2021

Mary Grace Houlihan, Public Works Director  
City of Emeryville  
1333 Park Avenue  
Emeryville, CA 94608

**Subject: On-Call Civil/Environmental Engineering Consultant Services**

Ms. Houlihan,

Wood Rodgers Inc. has carefully reviewed the Request for Qualifications for On-Call Civil/Environmental Engineering Consultant Services (RFQ) and provides this statement of qualifications for the sanitary sewer and storm drain master plan support, data collection, facility inspection and assessment, surveying, capital improvements, environmental planning and engineering, permitting support, and value engineering service areas. Our in-depth understanding of hydrology and hydraulics, extensive local experience, innovative Geographic Information Systems (GIS) tools and inspection techniques, and in-depth experience in designing coastal and urban infrastructure will ensure cost effective, on schedule, and high-quality delivery of our products.

Wood Rodgers recently developed the Zone 12 Drainage Master Plan for Alameda County Flood Control District and analyzed major storm drain trunk systems in the City of Emeryville. We possess the latest information and knowledge to efficiently expand the master plan to include all the City drainage facilities. Our drainage master plan experience throughout the Bay Area agencies also includes green infrastructure and trash capture modeling, assessment and design which can lead to integration of multi-benefit improvement projects. In addition, our grant funding service has helped public agencies to secure more than \$70 M of grants for capital improvements.

Wood Rodgers sanitary sewer master plan and design experience throughout California in combination with our teaming partner V&A Consulting Engineers' flow monitoring, inspection, and the neighboring City of Oakland master plan experience provide unparalleled experience and local knowledge to assist the City with sanitary sewer projects.

**Cheng Soo, PE, CFM**, will serve as the Project Manager and **Primary Point-of-Contact** for this contract. Mr. Soo has more than 20 years of experience in managing hydrologic and hydraulic analysis, ArcGIS geodatabase design, inspection, condition assessment, operations and maintenance activity optimization, lifecycle cost analysis, improvement design, and is a certified Hydraulic Institute Pump Assessor.

We look forward to this opportunity to contribute to the success of this project. Should you have any questions or require additional information, please contact me on my direct line at (415) 205-9874 or by email at [csoo@woodrogers.com](mailto:csoo@woodrogers.com).

Sincerely,



**Cheng Soo, PE, CFM**  
Project Manager



**Dan Matthies, PE, CFM**  
Principal-in-Charge



# City of Emeryville

INCORPORATED 1896

1333 Park Avenue. Emeryville, CA 94608-3517

t (510) 596-4300 | f (510) 596-4389

Date: April 26, 2021

Subject: Civil/Environmental Consulting RFQ – Addendum #1

Please find the attached clarifications to the above referenced RFQ.

1. Are we able to electronically submit the proposal in a PDF format or will the City want hardcopy proposals?

- a. If hardcopies are required | How many copies will the City require?

Answer/Clarification: Hard Copies and One Electronic copy must be submitted

2. Will covers, tabs, back covers count as part of the page count limitation (10)?

Answer/Clarification: Transmittal letter, Cover, Index, tabs, addendum acknowledgement sheet and back covers are not included in the page count. Note RFQ identified the 10 page limit excludes resumes. Refer to Section 4.2 of the RFQ for Submittal Contents and Format

The proposal due date remains April 29, 2021, 5:00 p.m.

Signature of this Addendum Sheet and inclusion of it with the Proposal is required in your proposal submittal.

Date: April 26, 2021 By: Mary Grace Houlihan

Company: Wood Rodgers, Inc.

Authorized Name: Dan Matthies, PE, CFM

Date: 04/26/2021

Qualifications







## Qualifications

### Management and Communication Approach

Our team's Project Manager, **Cheng Soo, PE, CFM**, will serve as the main point-of-contact. As a Principal with Wood Rodgers, Mr. Soo has authority to commit the firm and assign additional staff resources as-needed. **Mr. Soo will maintain an open line of communication between the design team and the City, so that the City is aware of the project status and is participating in all key design decisions.** This will be accomplished through regular recurring meetings, workshops, and weekly telephone calls and emails.

Upon receiving a notice-to-proceed, the project manager will set up a kickoff meeting to introduce key members of the team, identify the project goals, review policies and procedures, describe the work plan, provide an overview of the quality control approach, and distribute a detailed project schedule. Project meetings will continue regularly throughout the duration of the project, including a design workshop with City's stakeholders, if required. Meeting minutes will be developed and distributed for each meeting and shall include action items and upcoming tasks.

Design criteria will be developed prior to the commencement of each project. Major milestones will be identified in the detailed project schedule with predecessors to illustrate the process of a project. Project task deliverables including the required format and requirements will be standardized. All the items above will

be shared with technical leads, staff, subconsultants, the client, other consultants, and government agencies at the beginning of a project to set clear expectations, avoid confusion, and increase efficiency.

During the course of the project/task, our project manager will conduct internal meetings with selected technical leads, and subconsultants for project updates and technical discussions prior to the meetings with the client. The technical lead for each service area will then work with key team members closely to execute tasks.

**Our project manager firmly believes that managers should directly engage in technical tasks to be able to scope a project accurately, estimate a realistic schedule, foresee challenges early on, and develop detailed solutions to communicate to staff.** At Wood Rodgers, our project manager as well as our technical leads work on technical tasks in addition to our management tasks. Our company culture has successfully led our team through difficult circumstances and tight project schedules.

### Ability to Perform the Scope of Work

Wood Rodgers team's ability to perform the scope of work outlined in this request of qualifications builds on our experience and record of success as described in the Summary of Experience section, and the qualifications of our task leads as described in the Project Team section.

Summary of Experience											
Wood Rodgers' Team Storm Drain Experience											
No.	PROJECT	Master Plan	Capital Improvements	Design/ Plan/ Model Review	Standards Update	GIS Database/ Tool/ Website	Asset Management System	Operations & Maintenance	Grant Funding	Environmental Permitting	RWQCB
1	Zone 12 Drainage Master Plan – Alameda County Flood Control District	✓	✓	✓	✓	✓	✓	✓		✓	
2	Stormwater Management and Tidal Flooding Vulnerability Assessment, Port of Oakland	✓	✓	✓		✓	✓	✓			✓
3	City of Oakland Drainage Master Plan	✓	✓	✓	✓	✓	✓	✓		✓	✓
4	Marin City Drainage Master Plan	✓	✓			✓				✓	
5	Pump Station Condition Assessment, Alameda County Flood Control District		✓	✓	✓	✓	✓	✓		✓	
6	Town of Danville Town-Wide Storm Drain Condition Assessmet	✓	✓	✓	✓	✓	✓	✓			
7	Simmons Slough Water Management System Drainage Improvements, Marin County Flood Control District		✓	✓		✓		✓	✓	✓	
8	Meekland Trash Capture Analysis and Design, Alameda County Flood Control District		✓	✓		✓				✓	✓
9	Estudillo Canal Tide Gate		✓	✓		✓				✓	
10	Neptune Drive Levee		✓	✓						✓	
11	Lower Penitencia Creek Improvements Projects		✓	✓		✓				✓	
12	Redwood Creek Improvements, City of Redwood City		✓	✓		✓				✓	
13	Price Pump Station HMGP Grant Application, City of Redwood City								✓		
14	Marin City Improvements Grant Application, Marin County Flood Control District								✓		



Wood Rodgers' Team Sanitary Sewer Experience		Inspection	Master Plan	Capital Improvements	Design/ Plan/ Model Review	Standards Update	GIS Database/ Tool/ Website	Asset Management System	Operations & Maintenance	Environmental Permitting	EBMUD/ RWQCB
No.	PROJECT										
1	East Bay Municipal Utility District: Inflow Investigative Services. Oakland, Berkeley, Emeryville, Stege, Albany, Alameda, CA	✓					✓		✓		✓
2	City of Oakland, Sanitary Sewer Master Plan, Oakland, CA	✓	✓	✓	✓	✓	✓	✓	✓		
3	City of San Jose On-Call Temporary Flow Monitoring, San Jose, CA	✓							✓		
4	City of Oakland Compliance Management Consulting, Oakland, CA									✓	✓
5	City of Richmond Force Main Systems Condition Assessment. Richmond, CA	✓						✓	✓		
6	Cupertino Sanitary District-Wet Weather Open Channel Flow Monitoring at 28 Sites for 6 weeks. Cupertino, CA	✓	✓						✓		
7	Town of Windsor Inflow/Infiltration CCTV Evaluation Review, Windsor, CA	✓						✓	✓		
8	City of Beverly Hills - Integrated Water Resources Master Plan, Beverly Hills, CA	✓	✓	✓	✓		✓		✓		
9	Groveland Community Services District - Integrated Water & Wastewater Master Plan, Groveland, CA		✓	✓	✓	✓	✓		✓		
10	SASD - S-070 Sewer Lift Station Upgrades, Rancho Cordova, CA	✓			✓				✓	✓	
11	City of Roseville - Central Lift Station, Roseville, CA				✓				✓	✓	✓
12	City of Calistoga, Rancho de Calistoga Lift Station Upgrades, Calistoga, CA	✓			✓					✓	✓
13	City of Lincoln - 5th Street Improvements, Lincoln, CA	✓			✓					✓	
14	City of Sacramento - McKinley Village Sewer and Storm Drain Pump Station, Sacramento, CA				✓				✓	✓	✓

Managing sanitary sewer and storm drain projects requires a team that has successfully performed similar projects and can anticipate the challenges that those projects bring. **Our current experience with the Alameda County Flood Control District's storm drainage projects (especially the Zone 12 Drainage Master Plan that includes the City of Emeryville) and with EBMUD and the neighboring City of Oakland gives us the local experience needed to address the immediate needs of the City while our region-wide experience gives the City a team that has addressed sanitary and flooding concerns of varying sizes and resources.** In spite of difficult circumstances and rigid schedules that a project may endure, our team has a history of being able to meet the tightest of deadlines to meet the immediate needs of cities and counties. Our technological tools streamline project timelines, save money, and allow for more careful analyses to provide the City with greater value and better long-term success of projects. **With our depth of experience, we are able to manage and mitigate all challenges that a project may encounter with a high degree of success.**

## Project Description

### Sanitary Sewer

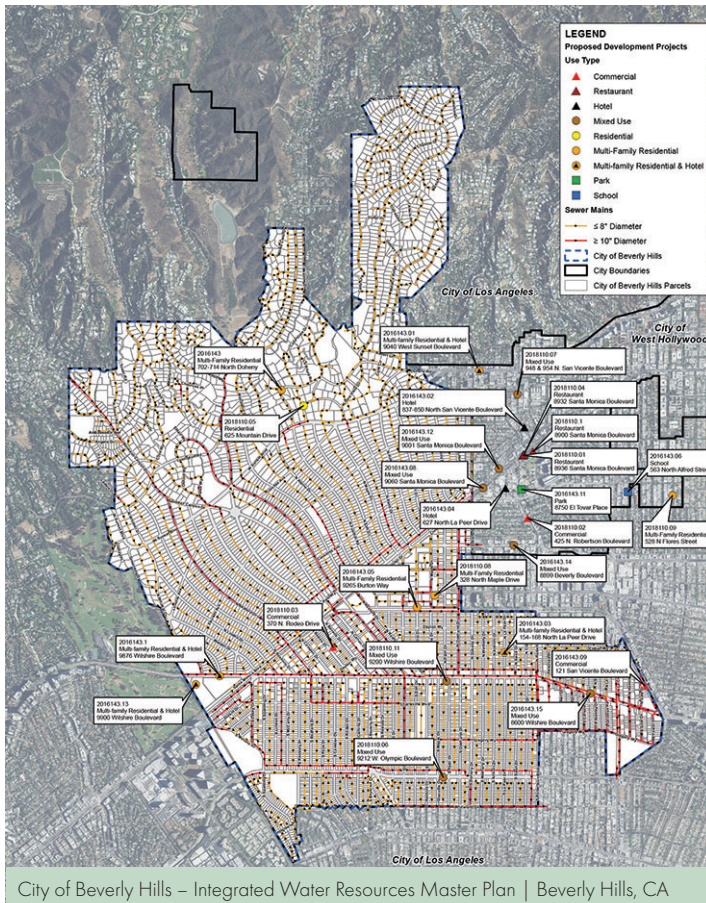
#### City of Beverly Hills – Integrated Water Resources Master Plan | Beverly Hills, CA | Wood Rodgers

The City of Beverly Hills prepared an Integrated Water Resources Master Plan that included the evaluation of all of their wet infrastructure systems, with the goal of identifying opportunities to efficiently utilize their water resources and develop integrated projects. Wood Rodgers, as a subconsultant to Hazen & Sawyer, prepared the sewer system and storm drain system sections of the Master Plan. The sewer collection system consists of approximately 100 miles of gravity pipelines and approximately 2,200 manholes. Wood Rodgers completed a detailed analysis of the City's sewer collection system, which included four weeks of flow monitoring that was used to develop sewer generation rates, peaking factors and diurnal patterns. The system analysis included updates to the GIS geodatabase the development of an extended period simulation hydraulic model using the InfoSewer modeling platform. Wood Rodgers also conducted a detailed analysis of the storm drain system developed in InfoWorks ICM to analyze





# Qualifications for | On-Call Civil/Environmental Engineering Services



the capacity of the storm drain conveyance system within the City limits to accommodate a 10-year, 25-year and 50-year storm event. The results of the capacity and condition analysis resulted in proposed capital improvement projects to upgrade the system capacity and rehabilitate aging infrastructure.

The document is a comprehensive planning document that analyzed the water, sewer, and storm drain systems owned, operated, and maintained by the City. The project addressed the City's major water resources strategy which includes imported water, groundwater, and other potential supply sources, as well as emergency storage for the water system, and stormwater compliance. The document addressed each system which included components of the existing system and service area, evaluation and design criteria, system analysis, and capital improvements.

**Reference |** Josette Descalzo | Environmental Compliance and Sustainability Programs Manager | City of Beverly Hills | 310.285.2554 | [jdescalzo@beverlyhills.org](mailto:jdescalzo@beverlyhills.org)

## Sacramento Area Sewer District – S-070 Sewer Lift Station | Rancho Cordova, CA | Wood Rodgers

Wood Rodgers provided engineering and surveying services for the Rio Del Oro Phase 1 Development which will occupy 138 acres and include approximately 841 equivalent single-family dwelling units. The wastewater generated from Phase 1 is estimated at 0.67 MGD under peak wet-weather conditions, and will convey to the existing Sacramento Area Sewer District (SASD) S-070 Pump

Station located along Sunrise Boulevard, south of White Rock Road. Due to the increased influent to the S-070 Pump Station, improvements to the station were required to support of the pump station upgrades.

Wood Rodgers prepared a Basis of Design Report (BOOR), that identified the specific improvements required for the S-070 Pump Station to accommodate the proposed development. In general, the improvement includes: Replacing the two (2) existing pumps with three (3) new submersible pumps, rated for 929 gpm at 45-feet TDH, each. Each motor will have a rated power of 20 Hp; Replacing the piping in the wet well; Installation of Variable Frequency Drives (VFDs) for the pump motors; New electrical equipment under a shade canopy; SCWA water connection and service; Valve vault; Two magnetic flowmeters in a vault; Access road improvements (geotextile and aggregate surface); Off-site manhole improvement; and Temporary by-pass operation

**Reference |** Yadira Lewis | Sacramento Area Sewer District | 916.876.6336 | [lewisys@sacsewer.com](mailto:lewisys@sacsewer.com)

## City of Lincoln – 5th Street Improvements | Lincoln, CA | Wood Rodgers

Wood Rodgers was retained by the City of Lincoln to prepare plans, specifications and estimates to rehabilitate or replace the water and sewer mains on East 5th Street, construct drainage improvements including new curb & gutter, reconstruct the roadway include signage & striping, and remove a Valley Oak Tree situated within the roadway. Wood Rodgers provided Surveying and Topographic Mapping for the project area. The Design level topographic survey captured existing improvements pertinent for the analysis of the water and sewer mains. Features collected included USA markings, major surface features from sidewalk to sidewalk, and location of overhead and subsurface facilities. A base map was produced which included the design level topographic survey together with the existing right-of-way lines, existing easements and lot lines.

**Reference |** Ray Leftwich | City of Lincoln | 916.434.2457 | [rleftwich@ci.lincoln.ca.us](mailto:rleftwich@ci.lincoln.ca.us)



City of Lincoln – 5th Street Improvements | Lincoln, CA





## Qualifications for | On-Call Civil/Environmental Engineering Services

### City of Oakland, Sanitary Sewer Master Plan | Oakland, CA | V&A Consulting

V&A is conducting a sanitary sewer master plan update for the City of Oakland's Public Works Department. The sanitary sewer collection system consists of 930 miles of gravity pipes, less than one mile of pressure force mains, and seven pump stations. Some pipes of the oldest pipes were installed around 1852, when Oakland was incorporated as a town. V&A's approach to the master plan was to gather existing information, collect new information from the field, update the hydraulic model, and then prioritize the City's capital and O&M activities to meet Consent Decree obligations and growth and development goals and objectives.

V&A conducted a review of the existing information from the City's GIS, maintenance records, CCTV video, sewer modeling data, sewer lateral permits, sanitary sewer overflow records, and future and recent development plans. V&A also received and reviewed sewer model and flow monitoring data for Oakland from East Bay Municipal Utility District (EBMUD).

V&A collected new asset information for manholes around the City to be used in a hydraulic model. V&A used an advanced GPS-based system to record the location and elevation of the manholes, rim-to-invert elevations for sewer lines, pipe size, and pipe material. V&A used ArcGIS to compile and report the data to the City.

The field investigation by V&A also included the installation of flow monitoring meters within select manholes to determine average flow rates and patterns throughout the City's sewer collection system. V&A analyzed the data, and the data will be used to update the City's sewer hydraulic model. The flow monitoring data will also help identify areas of infiltration/inflow (I/I). Improvements to the sewer system will be prioritized to relieve capacity deficiencies, eliminate system bottlenecks, and accommodate future planning.

**Reference |** Wen Chen, Ph.D, PE | Supervising Civil Engineer | City of Oakland | 510.238.6697 | [wchen@oakland.ca.gov](mailto:wchen@oakland.ca.gov)

### East Bay Municipal Utility District: Inflow Investigative Services | Oakland, CA | V&A Consulting

East Bay Municipal Utility District (EBMUD) is conducting a study of various inflow investigation services within its satellite agencies to (a) try to find and mitigate sources of inflow, and (b) determine which types of inflow technologies are most effective within the EBMUD collection system. V&A has conducted both smoke testing and flow monitoring in support of the EBMUD inflow investigative services project.

V&A has smoke tested approximately 408,000 lineal-feet of pipe within the EBMUD satellite agencies of the cities of Oakland, Albany, Berkeley, Emeryville and Piedmont, and the Stege Sanitary District. V&A pulled the proper permits for the various agencies as well as placing notification door hangers on affected residents. Several different types of smoke returns were discovered, detecting pipe defects, illegal cross-connections, connected downspouts and area-drains.

V&A has also installed approximately 101 flow meters within the EBMUD satellite agencies gravity sewer system lines ranging in

size from 6 to 36-inches, in the cities of Oakland and Berkeley. This project was time sensitive as the goal of the project was to capture wet weather flows. To satisfy this requirement, for each phase of the project the meters were installed within 6 working days.

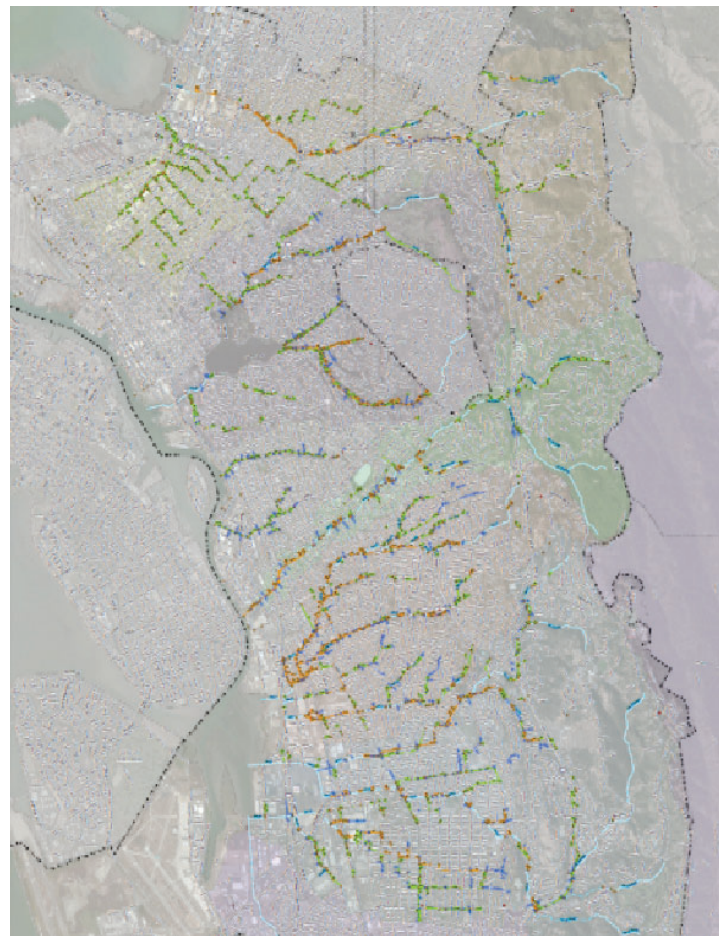
**Reference |** Kristina Elmasu, PE | EBMUD | 510.287.1102 | [kristina.elmasu@ebmud.com](mailto:kristina.elmasu@ebmud.com)

### Storm Drain

### Alameda County Zone 12 Drainage Master Plan. P1 & P2 | Alameda, CA | Wood Rodgers

Wood Rodgers was awarded as the prime consultant for this project that required the development of a Drainage Master Plan including detailed analyses using InfoWorks ICM hydrologic and hydraulic models of the over 60 square miles of watershed, 1D hydraulic models of over 90 miles of the closed conduit systems, 1D hydraulic models of the over 20 miles of open channel system, and 2D floodplain hydraulic models of the urban and tidal areas.

The project entailed developing a very sophisticated GIS geodatabase of the District's infrastructure (including open channels, storm drainage trunks, crossings, gates, etc.) and the District's watershed data (including LIDAR, surveys, soils maps and borings, land use data, parcels, community boundaries, APN information, vegetation, aerials, CCTV data, etc. This geodatabase



Alameda County Zone 12 Drainage Master Plan. P1 & P2 | Alameda, CA





was designed to provide for a very detailed and structured method of QA/QC, and for direct input into the hydrologic and hydraulic models. No data was imported into the database unless it had been verified using two or more sources (for example, as-built improvement plans checked against site photos and/or field surveys all of which are in the database, including as-built scans.) Each element or component is signed off and sources are documented in the database. As changes in the infrastructure are made the District can always be aware of whether or not there is up-to-date information in the database. Because the database is structured for input into the models, the models can be kept up-to-date easily. The geodatabase schema was designed specifically for the District and is now accessible in GIS and as a web-GIS application.

The District has completed two previous Drainage Master Plans using MIKE software. In order to ensure maximum accuracy and maximum efficiency, the District directed a comparison of different software using gaging of local, small, urban watersheds in Oakland and Fremont. These small watersheds were modeled using different software and different methods, for several periods of time. The review included MIKE, SWMM, HEC-1, and InfoWorks ICM. The efficiency available with ICM led the District to propose developing draft models using this software.

After selection of the software and confirmation of District methodology, the hydrologic and hydraulic models were calibrated and validated using recent recorded events, and then presented to the District for their use as a tool to assess needed improvements. The models are documented in the GIS database, and deliverables include plan and profile drawings of each of the open channels and large conduit systems in the Zones.

**Reference |** Rohin Saleh | Alameda County Flood Control & Water Conservation District | 510.670.5487 | rohin@acpwa.org

### **Neptune Drive Flood Improvements | San Leandro, CA | Wood Rodgers**

In 2015, Federal Emergency Management Agency (FEMA) published a 100-year floodplain mapping study which identified coastal communities at risk of flooding once in 100 years. The study found a section of San Francisco Bay shoreline, located within the City of San Leandro with a low shoreline elevation compared to adjacent shoreline. Considering sea water elevations, tidal swings and storm intensity, the section of shoreline was identified to be a source of flooding for the neighborhood directly East.

In response, the City of San Leandro contracted Wood Rodgers to analyze the existing shoreline against floodplain mapping data to design flood control improvements to remove the neighborhood from the 100-year floodplain. Wood Rodgers has provided a comprehensive evaluation of flood control improvements, environmental and feasibility flood control alternatives to develop an engineered solution which protects the coastal community with regulatory agency compliance of Army Corps of Engineers, San Francisco Bay Conservation and Development Commission, San Francisco Regional Water Quality Control Board and FEMA.

Project management responsibilities include the preparation of plans, specifications and engineer's estimate (PS&E), permit

processing and construction support services. Specific duties include civil site design, design team coordination (geotechnical, environmental, survey, mapping, structural), agency and public outreach.

**Reference |** Moses Tsang | Alameda County Flood Control & Water Conservation District | 510.670.6549 | moses@acpwa.org

### **San Jose Storm Sewer Master Plan | Santa Clara County, CA | Wood Rodgers**

Wood Rodgers was awarded this \$1.5M contract by the City of San Jose to refine and further develop the City Storm Sewer Master Plan. The City had already partially developed a InfoWorks ICM model of the city storm drainage system, and the Santa Clara Valley Water District (SCVWD) open channel system. Wood Rodgers used our capabilities to refine the model and optimize it's use. The project includes developing a comprehensive asset based hydrologic and hydraulic GIS geodatabase, developing GIS tools, performing facility inspections, inventorying stormwater and green infrastructure facilities, and developing detailed hydrologic and hydraulic models for 400 miles of pipes, 82 miles of open channels of the SCVWD facilities, 30 pump stations, and 6 reservoirs.

The project also includes refining a design storm based on historical gage data, surface and groundwater calibration based on 70 pipe and stream gages, alternative improvement analysis and a capital improvement plan. The detailed and calibrated models have been used to support emergency action plan development and to analyze the hydraulic impacts of trash capture devices and other green infrastructure. 30 trash capture devices, 200 Low Impact Developments, 10 hydromodification facilities and large regional stormwater capture facilities were modeled to reduce the capacity improvements. Capacity deficiencies are being finalized and storm drainage system improvements are being developed. The deficiencies are grouped based on flood risk, and alternatives are ranked based on cost effectiveness, permitting requirements and multi-benefit objectives. Wood Rodgers has saved the City more than \$20 M by optimizing one of the improvements recommended in the previous drainage master plan developed by other.

**References |** Shelley Guo | City of San Jose | 408.793.4132 | shelly.guo@sanjoseca.gov

### **Simmons Slough Water Management System Drainage Improvements | Novato, CA | Wood Rodgers**

The Simmons Slough watershed is located in the City of Novato, Marin County, CA and is bisected by Highway 37 (see Figure 1). The watershed consists of approximately 1,837 acres (2.9 square miles) and is comprised of agricultural lands bounded by small field dikes. The nature of field drainage flow is predominantly shallow flow, which drains to pumping facilities through small channels such as Simmons Slough. The watershed is currently drained by the Remote Pump Facility (operated by the Novato Sanitation District (NSD)) and a rented portable pump at the malfunctioning "Big Bertha" facility (operated by the Marin County Flood Control District). The Remote NSD Pump Facility has a capacity of



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approximately 22-cfs (10,000-gpm). The original Big Bertha pump has a capacity of approximately 38-cfs (17,000-gpm).

The District prepared a Grant Migration study to determine the existing hydraulic performance of the Simmons Slough drainage system and to analyze any feasible water management improvements in preparation for a transfer of DWR grant funds from an adjacent watershed. The water management improvements will control the water levels in Simmons Slough and surrounding low lying areas, increase wetland in the Audubon's property, and also mitigate flooding risk at HWY37, Atherton Ave, and Olive Ave. The Grant Migration study recommended the following improvements (see Figure 1): Culvert improvements at several locations (including (6) 48" RCPs at various locations in the Simmons Slough area surrounding Hwy 37), the clearing of sediment in the Hwy 37 crossing, and an increase in pump capacity to approximately 40-cfs (18,000-gpm). The increased pump capacity can be achieved by 1) adding additional pumps to the existing pumps at the NSD Remote Pump Facility, 2) modifying the existing pumps at the NSD Remote Pump Facility, 3) replacing the existing pumps at the NSD Remote Pump Facility with new pumps with more capacity, or 4) constructing a new higher capacity remote pump facility.

**Reference** | Roger Leventhal, Associate Engineer | Marin County Flood Control & Water Conservation District | 415.473.3249 | rleventhal@marincounty.org

## Project Team

### Wood Rodgers, Inc.

#### Dan Matthies, PE, CFM | Principal-in-Charge

Mr. Matthies is a Principal with Wood Rodgers with 31 years of civil engineering and water resources evaluation and design experience. Mr. Matthies has extensive experience in hydrologic and hydraulic analyses of open channel and pipe systems; preparing storm drainage master plans; preparing construction drawings of stormwater and flood control infrastructure including pipes, levees, floodwalls, open channels, and pump stations; and the determination of floodplain limits using one- and two-dimensional software.

#### Cheng Soo, PE, CFM | Project Manager + Storm Water Lead

Mr. Soo is a Principal with Wood Rodgers with 21 years of engineering planning and design experience in water resources for flood control infrastructure including pipes, levees, floodwalls, open channels, detention basins, reservoirs, and pump stations. He has comprehensive experience ranging from developing drainage master studies, hydrologic and hydraulic analyses, performing facility inspection and assessments with geodatabases, customized GIS tools flow gage installation, geodatabase and website design,



City of Emeryville  
CALIFORNIA

## On-Call Civil/Environmental Engineering Consulting Services

### Principal-in-Charge

★ ■ Dan Matthies, PE, CFM

### Project Manager

★ ■ Cheng Soo, PE, CFM

### QA/QC

■ Jonathan Kors, PE

## LEGEND

■ Wood Rodgers, Inc.

■ V&A Consulting Engineers

★ Key Team Members

### Sewer

★ ■ Kevin Gustorf, PE

### Project Engineering

■ Karl Meier, PE

■ Jeremiah McMahon, PE

■ Jason Gornall, PE, LEED AP, ENV SP, QSD

### Hydraulic Modeling

■ Lucas Philbert, EIT

### Storm Water

★ ■ Cheng Soo, PE, CFM

### Design

■ Jeremiah McMahon, PE

### Modeling

■ Satish Kumar, PE

### Inspection

■ Jeremiah McMahon, PE

### Permitting + Environmental

■ Tim Chamberlain

### CCTV + Field Work

■ Kevin Krajewski, PE

■ Nicole Kwan, PE, ENV SP

### GIS

■ Azin Sharafeddinnouri





## Qualifications for | On-Call Civil/Environmental Engineering Services

drainage facility design, FEMA CLOMR and LOMR applications, FEMA levee certification, operations and maintenance manuals, and state and federal grant applications.

### **Jonathan Kors, PE | QA/QC**

Mr. Kors is a California registered Civil Engineer with 22 years of experience in water resources design and construction. He has been responsible for the design and analysis of flood control facilities throughout California using Department of Water Resources (DWR) Urban Levee Design Criteria (ULDC), Central Valley Flood Protection Board (CVFPB) criteria, as well as US Army Corps of Engineers (USACE) guidance and criteria. He has managed multi-disciplined teams in developing water resources projects and led teams of engineers in preparing designs (plans, specifications, and cost estimates) relating to new and rehabilitated facilities. He has performed inspections of flood control facilities, and prepared operation and maintenance manuals for completed works. He has coordinated the design and construction of projects with the USACE, DWR, CVFPB, and other agencies with review and oversight responsibility for projects within the Sacramento-San Joaquin Valley.

### **Kevin Gustorf, PE | Sewer Lead**

Mr. Gustorf is a registered professional engineer with over 20 years of leadership and expertise in the water resources field. His experience in water resource engineering includes the planning, design, construction and management of a wide variety of projects for local municipal public works agencies, special districts and private sector clients throughout the state of California. His diverse project experience includes water and wastewater master planning, hydraulic modeling, hydraulic analysis and studies. He is an expert on several different modeling platforms and has conducted presentations on modeling throughout the Western U.S. Mr. Gustorf's design experience includes the design of water and wastewater pipelines, pump stations, lift stations, flow/pressure control facilities, wells, tanks and reservoirs. His projects have included both new designs, as well as the repair and rehabilitation of existing facilities

**Karl Meier, PE | Project Engineer – Sewer** Mr. Meier has over 17 years of experience as both a consultant and as a District Engineer for a public water agency. Mr. Meier's past public sector experience required active involvement and management of the engineering, operations and maintenance activities for a public water system. As a consultant, he has extensive experience in the planning and design of water, recycled water and wastewater infrastructure including pipelines, force mains, pump stations, wells, pressure reducing stations and reservoirs. Mr. Meier also has significant master planning and hydraulic modeling experience for public agencies and special districts. Mr. Meier's planning and design expertise is complimented by his past construction management and inspection experience, where he was directly responsible for construction management and inspection services for public works projects ranging from water infrastructure to municipal park and ADA improvement projects. He is extremely proficient with a variety of software applications

including the Microsoft Office Suite (Excel, Word, PowerPoint, Project), AutoCAD and is an expert in various modeling software platforms including Innovyze InfoSewer.

### **Jeremiah McMahon, PE | Project Engineer – Sewer & Storm Water Design + Inspection**

Mr. McMahon has 11 years of water resources engineering experience. He has been a licensed professional engineer since 2011. His general engineering experience includes process technical design; operation and maintenance manual development; hydraulic facility inspection and assessment; hydraulic structure design; and construction support. Mr. McMahon's water resources engineering experience extends from municipal wastewater treatment field, wastewater collection systems, water distribution systems to storm drainage systems.

### **Jason Gornall, PE, LEED AP, ENV SP, QSD | Project Engineer – Sewer**

Mr. Gornall has a wide range of project experience which includes planning, design, condition assessment, and construction management of new and/or the rehabilitation of existing conveyance, storage, and distribution systems. Collectively, he has designed more than 140,000 feet of pipelines up to 60 inches in diameter. He is experienced in alternatives analysis, detailed design cost estimating, and constructability reviews. Additionally, Jason specializes in managing agency and stakeholder coordination on high-density, urban-area projects.

### **Lucas Philbert, EIT | Hydraulic Modeling – Sewer**

Mr. Philbert is a Project Engineer with several years of experience in water, wastewater, and recycled water projects. His project experience covers a wide range of assignments in planning, design, and project management, including: infiltration/inflow studies, hydraulic modeling, funding support, regulatory compliance, feasibility studies, plans and specifications, and construction management. He has extensive experience using various sewer modeling platforms, including InfoSewer.

### **Satish Kumar, PE | Storm Water Modeling | Wood Rodgers**

Mr. Kumar is a water resources engineer with an emphasis on hydrologic and hydraulic modeling. He has experience in the planning, analysis and design of flood control facilities, pump stations, levees, water quality infrastructure, and storm collections systems. Mr. Kumar has worked under senior and principal engineers on complex projects for both public and private sector clients. He is proficient in MIKE-11, MIKE-21 FM and Classic, MIKE-Urban, MIKE-Flood, TUFLOW-FV and Classic, HEC-RAS, HEC-HMS, StormCAD, FlowMaster, XP-SWMM, SMS, and GIS.

### **Harvey Oslick, PE, CFM, CPSWQ, ENV SP | BMP**

Mr. Oslick has many years of engineering and management experience, including over 20 years specializing in water resources with an emphasis on drainage, flood control and storm water quality. His experience includes project planning, design and construction, with specific expertise in hydrologic and hydraulic



## Qualifications for | On-Call Civil/Environmental Engineering Services

modeling, storm drainage master planning, and the analysis and design of flood control projects with multi-purpose objectives. For hydrologic modeling, he is experienced in the use of numerous software programs, including HEC-RAS, HEC-HMS, XPSWMM and FLO-2D. He also has experience with the National Flood Insurance Program and the National Pollutant Discharge Elimination System (NPDES) requirements, including hydromodification management planning, in support of both public agency and private entity projects.

### **Judd Goodman, PE | BMP**

Mr. Goodman has 15 years of experience planning, designing, and managing surface water systems. His most significant technical contributions are solving water resources problems, which require both an engineering and geomorphic perspective. He has experience in hydromodification planning and impact analysis, stream channel rehabilitation design, geomorphic field assessment and monitoring, erosion and sediment control inspection, flood assessment, design of stormwater management systems, and storm event characterization for litigation support. His project contributions include project management, hydrologic modeling, hydraulic calculations, sediment budget and transport analysis, geographic data analysis, historical document review, and field reconnaissance.

### **Tim Chamberlain | Permitting + Environmental**

Mr. Chamberlain is a Senior Environmental Planner with Wood Rodgers, specializing in the project delivery through the environmental and permitting phases. Mr. Chamberlain has extensive experience preparing environmental technical studies and environmental documents and managing a team of environmental specialists from project concept through construction. Mr. Chamberlain has extensive experience in a variety of aspects of planning, including land use, environmental planning, and community outreach and engagement. Mr. Chamberlain is experienced in CEQA and NEPA analysis, document preparation, as well as presentations to planning and transportation commissions, city councils and other involved agencies and stakeholders. As a former Caltrans employee, Mr. Chamberlain received extensive training and experience in Intermodal Transportation Management System and GIS based programs.

### **Azin Sharafeddinnouri | GIS**

Mr. Sharafeddinnouri is a GIS Analyst with 12 years of experience working with the ESRI ArcGIS stack that includes design, implementation and administration of Enterprise GIS, data management, data analysis and solution design. He has extensive expertise in GIS projects related to local governments, public safety, oil and gas, and water resources. Mr. Sharafeddinnouri is skilled in design and managing relational databases and Enterprise Geodatabase (SDE) in MS SQL Server. He is proficient in ArcGIS Enterprise (Portal for ArcGIS, ArcGIS Server, ArcSDE), ArcGIS Desktop, Safe FME Desktop, Autodesk Map 3D, 3D Analyst, Spatial Analyst, Network Analyst, GeoEvent, SQL Server 2016, PostgreSQL & PostGIS, Python, and ArcPy.

## **V & A Consulting**

### **Kevin Krajewski, PE | CCTV + Field Work**

Kevin Krajewski is a senior level project engineer, engineering manager, division manager, practice leader and respected industry leader for over 27 years. He is an entrepreneur who has combined technical expertise and a strong work ethic to transform a perceived the commodity service of flow monitoring into a professional engineering value-added service, growing the company business and market share within this industry from a start-up level into a sustainable multi-million-dollar source of revenue generation for V&A. His expertise includes flow monitoring and analysis of inflow and infiltration (I/I) into collection systems, including development of synthetic I/I hydrographs and estimate of peak wet weather flows for design storm events. Mr. Krajewski also has considerable condition assessment experience and in past years was division head for the Condition Assessment Group. He has served as the QA/QC advisor and data manager and project manager on hundreds of projects for V&A throughout California and the Western United States.

### **Nicole Kwan, PE, ENV SP | CCTV + Field Work**

Ms. Kwan has over 9 years of experience and her goal is the sustainable development of water and wastewater infrastructure. During her first two years at V&A, she was part of our cross-functional teams, including services of flow monitoring, condition assessment, corrosion engineering, coating systems, and asset management. Prior to her masters, She also worked as a geotechnical technician and structural associate engineer. Ms. Kwan now dedicates her career to developing flow monitoring and condition assessment into professional engineering, value-added services. Her expertise includes analysis of inflow and infiltration (I/I) into collection systems, estimate of peak wet weather flows for design storm events, GIS-based data collection, and risk analysis.

## **Quality Assurance/Quality Control Program**

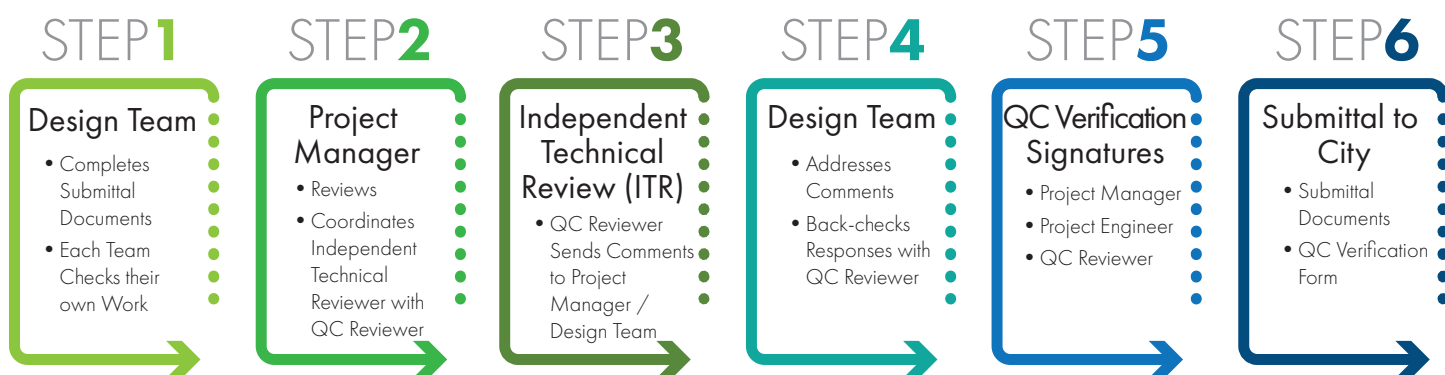
Our work products are representations of Wood Rodgers, as well as the individuals that create them. We take great pride in what we do, and we want our designs to show it. To achieve the highest quality product, it is important to have a Quality Assurance and Quality Control (QA/QC) program that work hand in hand. Quality Assurance is a cultural element here that permeates what our Design Team does on a daily basis. Aligning the right resources, technical guidance / tools, while constantly promoting the importance of quality assures we will exceed the District's expectations.

While every Team member is responsible for ensuring their work is of a high quality, our Project Manager, Mr. Soo, will ultimately be responsible for the quality of work products completed under his direction (including subconsultant deliverables). Quality control reviews will follow the procedures outlined in the project specific Quality Management Plan. Part of this plan is an Independent Technical Review (ITR). The Quality Control Reviewer will perform ITRs of work in progress and all deliverables. Once the ITR is complete, each comment is tracked and resolved prior to delivery





# Qualifications for | On-Call Civil/Environmental Engineering Services



to the City. Due to the focused nature of this project, our template forms and checklists will be streamlined to fit the needs of this pipeline design project, while avoiding unnecessary complication, review, and cost.

## QC Review Checklist

In addition to QC reviewers electronically marking up / commenting directly on the deliverables with the BlueBeam Revu software, the reviewer will utilize a checklist developed to assist in reviewing deliverables. This form incorporates the basic aspects of the work, the City standards, as well as the facets of the project where coordination with others is necessary. The checklist is delivered to the Project Manager along with the review comments.

## Independent Technical Review

An Independent Technical Review (ITR) will also be performed by Mr. Kors. The ITR will review the deliverable to confirm it meets the scope, standards, and acceptable engineering practices. Written documentation will be maintained by the PM detailing the comments created during the ITR. The PM will then work with the design team to resolve the comments, and perform a back-check to assure the review comments have been properly addressed.

## QA/QC Verification Form

Following the resolution of the ITR comments, the QC Reviewer, the Project Manager and Project Engineer will sign the "QC Verification Form". This completed form formally documents the review, and is submitted to the City with each design deliverable.

## City Review

The PM will forward the fully checked and reviewed deliverables to the City for review. The PM is then responsible for coordinating any issues and responses from the City concerning the submitted deliverables.

All comments received by the City are logged in a comment review workbook. The PM then reviews the responses from the Design Team and works with the City to resolve and incorporate the review comments into the next submittal.

## Cost Control

Our approach to controlling design and constructions costs are intimately related, and is centered around clear and concise bid documents.

This all starts with a clear scope of work, that describes all of the needed tasks, deliverables, and delivery schedule. During design, we are able to monitor and manage budgets, first by setting up a Work Breakdown Structure (WBS) that breaks the project up into logical portions of work that can be easily measured. This combined with our ability to track real-time costs with the most advanced version of BST (accounting system) empowers the Project Manager to easily calculate financial health metrics like effort to complete, and effort at completion. While design costs can be directly controlled, we also have the ability to control construction costs. We accomplish this in two ways.

First through the design itself, awareness and communication of material and labor costs associated with various aspects of the project. Our Design Team understands the City's standards, and what is required to provide quality work without unnecessary expense.

Our second cost control strategy during construction is related to minimizing change orders. We can mitigate many potential change orders by making the project requirements, constraints and existing conditions, very clear in the bid documents (specifically the drawings).



# Qualifications for | On-Call Civil/Environmental Engineering Services

## Fee Schedules

### Wood Rodgers, Inc. 2021 Fee Schedule

Effective January 1, 2021

CLASSIFICATION	STANDARD RATE
Principal Engineer/Geologist/Surveyor/Planner/GIS/LA* II	\$280
Principal Engineer/Geologist/Surveyor/Planner/GIS/LA* I	\$245
Associate Engineer/Geologist/Surveyor/Planner/GIS/LA* III	\$235
Associate Engineer/Geologist/Surveyor/Planner/GIS/LA* II	\$225
Associate Engineer/Geologist/Surveyor/Planner/GIS/LA* I	\$215
Engineer/Geologist/Surveyor/Planner/GIS/LA* III	\$200
Engineer/Geologist/Surveyor/Planner/GIS/LA* II	\$190
Engineer/Geologist/Surveyor/Planner/GIS/LA* I	\$180
Assistant Engineer/Geologist/Surveyor/Planner/GIS/LA*	\$145
CAD Technician III	\$170
CAD Technician II	\$155
CAD Technician I	\$140
Project Coordinator	\$150
Administrative Assistant	\$130
1 Person Survey Crew	\$215
2 Person Survey Crew	\$315
3 Person Survey Crew	\$405
Consultants, Outside Services, Materials & Direct Charges	Cost Plus 10%
Overtime Work, Expert Witness Testimony and Preparation	Rate Plus 50%

\*LA = Landscape Architect

Blueprints, reproductions, and outside graphic services will be charged at vendor invoice. Auto mileage will be charged at the IRS standard rate, currently 56.0 cents per mile.

Fee Schedule subject to change  
January 1, 2022.

### V&A Consulting Engineers 2021 Fee Schedule

Rates include Overhead & Profit

CLASSIFICATION	STANDARD RATE
Principal-in-Charge (PIC)	\$280
Senior Project Manager	\$245
Project Manager	\$235
Senior Project Engineer	\$225
Project Engineer	\$215
Associate Engineer	\$200
Assistant Engineer	\$190
CADD Designer	\$180
Engineering Assis-tant	\$145
Senior Technician	\$170
Technician	\$155
Project Admin/Clerical	\$140
Forensic Engineering	\$150
Deposition/Court Appearance	\$130

#### Other Direct Costs

Soil and Coating Sample Analysis: Cost + 10%

Travel (Air/Hotel/Per Diem/Rent-A-Car): @ Cost

Auto/Truck Mileage: @Federal Rate

Field Truck: \$85/Day

Confined Space Entry Truck and Safety Equipment: \$130/Day

Reproduction, Printing, Shipping: @ Cost



Resumes





## Daniel Matthies, PE, CFM

Mr. Matthies is a Principal with Wood Rodgers with 30 years of civil engineering and water resources evaluation and design experience. He has experience coordinating large civil engineering projects with several subconsultants for both private and public clients. He has extensive experience in hydrologic and hydraulic analyses of open channel and pipe systems; preparing storm drainage master plans; preparing construction drawings of stormwater and flood control infrastructure including pipes, levees, floodwalls, open channels, and pump stations; and the determination of floodplain limits using one- and two-dimensional software. Mr. Matthies has served on the Board of Directors of Wood Rodgers, Inc.

### EXPERIENCE

**Marin City Trash Capture Device Hydraulic Impact Analysis and Final Design Layout — City of Marin, CA** | Mr. Matthies is the Principal-in-Charge currently providing detailed technical analysis of hydraulic impacts and mitigations as well as final design layouts for infrastructure improvements associated with large full trash capture devices being planned for the storm drain system in Marin City, County of Marin. The project will be built and maintained to be in compliance with the NPDES municipal separate storm sewer systems (MS4) program as required by the State of California Regional Water Quality Control Board.

**San Jose Storm Sewer Master Plan — City of San Jose, CA** | Mr. Matthies served as Principal-in-Charge for this project. Project includes developing a comprehensive asset based hydrologic and hydraulic GIS geodatabase, developing GIS tools, performing facility inspections, inventorying stormwater and green infrastructure facilities, and developing detailed hydrologic and hydraulic Infoworks ICM models for 400 miles of pipes, 82 miles of open channels of the SCVWD facilities, 30 pump stations, and 6 reservoirs. The project also includes refining a design storm based on historical gage data, surface and groundwater calibration based on 70 pipe and stream gages, alternative improvement analysis and a capital improvement plan.

**Pump Station Condition Assessment, Rehabilitation Study, & Performance Evaluations, Alameda County Flood Control & Water Conservation District — Alameda County, CA** | Mr. Matthies served as Principal-in-Charge in the development hydrologic and hydraulic models of the 24 flood control pump stations which defined existing flood risks and prioritized pump capacity improvements. The project scope included inventories, condition assessments, operation and maintenance schedules, performance testing, and risk analyses to recommend efficient combinations of re-operation, maintenance, rehabilitation, and improvements for each of 24 pump stations. Mr. Matthies oversaw the development of plans, specifications, and cost estimates for improvements to the pump stations based on the recommendations.

**Zone 12 Drainage Master Plan — Alameda County Flood Control District, CA** | Mr. Matthies is the Principal in Charge of this project for the Alameda County Flood Control & Water Conservation District to develop a flood control infrastructure analysis and design for the entire Flood Control Zone 12 Watershed (Oakland, CA). This \$2.3 million project includes the development of a detailed MIKE-URBAN hydrologic model of the entire 80 square mile watershed, including over 90 miles of the closed conduit system, a MIKE-11 hydraulic model of the entire 20-mile open channel system, and a two-dimension MIKE-21 model of the lower urban areas. Portions of the project are also being completed using InfoWorks ICM. The project includes a large effort to develop the existing infrastructure SDE database from survey data, mapping data, as-built construction plans, old improvement plans, and extensive field visits and remote inspection. The model was calibrated and validated with data from several in-system depth and flow gages placed for the project, and gage-adjusted Doppler RADAR data from recent events, and then used to evaluate the existing system and develop a Capital Improvement Plan for large areas of Zone 12 in the City of Oakland and San Leandro. The project is being documented in a Web-GIS portal.

**Simmons Slough DWR Grant Migration Project — Marin County, CA** | Wood Rodgers was contracted by the Marin County Flood Control and Water Conservation District (District) to prepare documentation for a migration of an Integrated Regional Water Management Grant



### PROJECT ROLE

Principal-in-Charge

### TITLE

Principal Engineer I

### EDUCATION

BS, Civil Engineering, California State University, Sacramento, 1990

### REGISTRATIONS/ CERTIFICATIONS

Registered Professional Engineer, California No. 49957

Certified Floodplain Manager No. US-08-03670

### PROFESSIONAL AFFILIATIONS

Floodplain Management Association (FMA)

### WOOD RODGERS, INC. START DATE

May 1, 1998





(which is tied to the North Deer Island Project) to the Simmons Slough Water Management Project (Simmons Slough Project). The study recommended gravity pipe (culvert) improvements at several locations (including six 48" RCPs at various locations in the Simmons Slough area surrounding Hwy 37), the clearing of sediment in the Hwy 37 crossing, and a 40-cfs (18,000-gpm) remote pump facility to replace the non-functioning "Big Bertha" pump. The grant migration was accepted by the Department of Water Resources.

Wood Rodgers then developed a Basis of Design document to refine the improvements. Based on an Alternatives Analysis, the selected alternative is the construction of a new pump station at Big Bertha site.

**Santa Clara Valley Water District, Lower Penitencia Creek Improvement Project — Milpitas, CA** | Mr. Matthies is Principal in Charge and Project Manager of this project for the Santa Clara Valley Water District. This project requires the development of design reports, plans, specification, and cost estimates for improvements to over one mile of a District flood control channel in Milpitas, CA. The design combines floodwalls, levees, vegetated benches, two raised bridges, one improved bridge, channel lining improvements, and channel widening. The project will increase the capacity of all the project reaches to convey future design flows, provide channel stability, and improve water quality and channel habitat. The project design is currently under way.

**O&M Manuals for Non-Federal Flood Control Projects — Alameda County Flood Control District, CA** | Mr. Matthies is Principal in Charge of this project preparing Operation and Maintenance Manuals for sixteen (16) locally constructed, non-federal flood control projects located in western Alameda County that are maintained by the Alameda County Flood Control and Water Conservation District (District). The manuals are required by the U.S. Army Corps of Engineers (USACE) to enable the District to participate in the USACE Rehabilitation and Inspection Program under PL 84-99 that provides federal assistance to restore projects that are damaged as a result of a flood.

**City of Redwood City, Eastern Low-Lying Area Drainage Master Plan — Redwood City, CA** | Mr. Matthies is the Principal in Charge responsible for the development of a drainage master plan for the heavily urbanized downtown areas in the Redwood Creek watershed near the San Francisco Bay and Highway 101. The project includes the development of a complex GIS database, a calibrated InfoWorks ICM model, remote inspection of several miles of pipe, and inspection of six City pump stations. The project is currently under way.

**Zone 5 Line A Rock Slope Protection Project — Alameda County Flood Control District, CA** | Mr. Matthies was Principal in charge responsible for the erosion remediation project along Zone 5 of Alameda Creek, which conveys 32,000 cfs within the channel protected by levees. The project included the development of plans, specifications, and estimates for redirective weirs, stoplog structures, and riprap armored channel slopes.

**Zone 5 Line A Sheet Pile Cutoff Wall Project — Alameda County Flood Control District, CA** | Mr. Matthies was Principal in charge of the sheet pile cutoff wall project to remediate the levee seepage issues along Zone 5 of Alameda Creek. The project included the development of plans, specifications, and estimates for the construction of 40-foot deep vinyl sheet pile walls.

**Zone 5 Line A Soil Bentonite Cutoff Wall Project — Alameda County Flood Control District, CA** | Mr. Matthies was Principal in charge responsible for the soil bentonite cutoff wall project proposed to remediate the levee seepage issues along Zone 5 of Alameda Creek. The project included the development of plans, specifications, and estimates for the construction of 80-foot deep soil bentonite walls, a 4,000-foot-long levee raise, and a slide gate structure.



## Cheng Soo, PE, CFM

Mr. Soo is a Principal with Wood Rodgers with 21 years of engineering planning and design experience in water resources for flood control infrastructure including pipes, levees, floodwalls, open channels, detention basins, reservoirs, and pump stations; and for green infrastructure and large trash capture devices. He specializes in developing drainage master studies and performing facility inspection and assessments with geodatabases, customized GIS tools, and Web interfaces. He has comprehensive experience ranging from flow gage installation, hydrologic and hydraulic analyses, condition inspection and assessments, geodatabase and website design, drainage facility design, FEMA CLOMR and LOMR applications, FEMA levee certification, operations and maintenance manuals, and state and federal grant applications. Mr. Soo is proficient in InfoWorks ICM, HEC-1, HEC-2, HEC-HMS, HEC-RAS, Unet, StormCAD, EPA-SWMM, XP-SWMM, MIKE-URBAN (MOUSE), MIKE-11, MIKE-21FM, MIKE-BASIN, FESWMS, FLO-2D, GIS and Visual Basic.

## EXPERIENCE

### Marin City Drainage Study, Marin County Flood Control District — Marin County, CA |

Mr. Soo was the Project Manager of the drainage study for the Marin City watershed for the Marin County Flood Control District. The study included a detailed hydrologic model of the entire 340-acre watershed, a hydraulic model of 8 miles of the closed conduit system, the tidal detention pond along Highway 101, and a two-dimensional model of approximately 90 acres of the lower urban areas near the pond. The model was calibrated and validated using data from historical events, and then used to evaluate the existing system, identify deficiencies, and develop a Capital Improvement Plan. Mr. Soo assisted the District to successfully secure a \$4M FEMA grant to fund improvements under Highway 101

**San Jose Storm Sewer Master Plan — City of San Jose, CA |** Mr. Soo is the Project Manager supervising the development of a comprehensive asset based hydrologic and hydraulic GIS geodatabase with GIS tools, as well as facility inspections and an inventory of stormwater and green infrastructure facilities. Mr. Soo is leading the development of detailed hydrologic and hydraulic models for 400 miles of pipes, 82 miles of open channels of the SCVWD facilities, 30 pump stations, 6 reservoirs, and 200 green infrastructures (including 30 large trash capture devices). The project includes refining a design storm based on historical gage data, surface and groundwater calibration based on 70 pipe and stream gages, alternative improvement analyses, a capital improvement plan, and an emergency action plan.

### Simmons Slough Water Management System Drainage Improvements, Marin County Flood Control & Water Conservation District — Marin County. |

As Project Manager, Mr. Soo is responsible for the design of a 18,000 gpm stormwater pump station to serve the Simmons Slough drainage area. The project scope includes design of: two (2) 40 horsepower vertical axial line shaft pumps, inlet screen, discharge piping, discharge flap gates, five (5) culvert crossing upsizing replacements, sediment and vegetation removal at one site, and duckbill check valve installation at two (2) sites. Mr. Soo is overseeing the basis of design report, alternatives analysis, pump design calculations, equipment selection, pump and piping layout, culvert layout, AutoCAD drafting, technical specification writing, and cost estimating.

### City of Redwood City, Redwood Creek Channel Improvements — Redwood City, CA |

Mr. Soo was the Project Manager of this APWA 2019 Project of the Year, which developed the improvements of a concrete lined channel in the City of Redwood City. Mr. Soo supervised the assessment of channel structural integrity, prioritization of section replacement, and development of improvement strategies, plans, specifications, and cost estimates for two of the channel reaches. Mr. Soo successfully managed complexities such as lack of City easements, uncertain property information, very constricted working space, restricted funding, limited contractor interest, lack of similar projects in the area to review, and many encroachments by

### Estudillo Canal Full Trash Capture Analysis - Alameda County Flood Control & Water Conservation District — Alameda County, CA |

As Project Manager, Mr. Soo oversaw the development of utility research, trash capture sizing and selection, hydraulic modeling,



## PROJECT ROLE

Will vary by project.

## TITLE

Principal

## EDUCATION

BS, Civil Engineering, Montana State University Bozeman, 2000

## REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer, California No. 66440

ASFPM Certified Floodplain Manager No. US-08-03666

## PROFESSIONAL AFFILIATIONS

Floodplain Management Association (FMA)

## ADDITIONAL TRAINING

16-Hour XP-SWMM, 2000 Workshop, 2001

16-Hour MIKE-SWMM Workshop, 2001

16-Hour Dynamic HEC-RAS Workshop, 2003

Visual Basic Programming Class, 2005

16-Hour FLO-2D Workshop, 2006

21-Hour GIS Geodatabases Class, 2009

24-Hour InfoWorks ICM, Workshop, 2013

8-Hour Pump Assessment Class, HI, 2017

## WOOD RODGERS, INC. START DATE

August 7, 2000





alternative analysis, and conceptual design. The team notably developed improvements that eliminated large trash capture head losses.

**Pump Station Condition Assessment, Rehabilitation Study, & Performance Evaluations, Alameda County Flood Control & Water Conservation District (District) — Alameda County, CA |** Mr. Soo served as Project Manager in the development hydrologic and hydraulic models of the 24 flood control pump stations which defined existing flood risks and prioritized pump capacity improvements. The project scope included inventories, condition assessments, operation and maintenance schedules, performance testing, and risk analyses to recommend efficient combinations of re-operation, maintenance, rehabilitation, and improvements for each of 24 pump stations. Mr. Soo oversaw the development of plans, specifications, and cost estimates for improvements to the pump stations based on the recommendations.

**Zone 12 Drainage Master Plan — Alameda County Flood Control District, CA |** Mr. Soo is the Project Manager for the flood control infrastructure analysis and design for the entire Flood Control Zone 12 Watershed in Oakland, CA. This \$2.3 million project includes the development of a detailed MIKE-URBAN hydrologic model of the entire 80 square mile watershed, including over 90 miles of the closed conduit system, a MIKE-11 hydraulic model of the entire 20-mile open channel system, and a two-dimension MIKE-21FM model of the lower urban areas. Portions of the project are also being completed using InfoWorks ICM. Mr. Soo led the development of infrastructure GIS database, modeling software benchmark, hydrologic modeling criteria, pipe survey and remote inspection programs, area percent imperviousness with remote sensing technology, customized GIS tools, 3-way linked (pipes, channels and 2D floodplains) models and Web-GIS portal.

**City of Redwood City, Eastern Low-Lying Area Drainage Master Plan — Redwood City, CA |** Mr. Soo was the Project Manager responsible for the development of a drainage master plan for the heavily urbanized downtown areas in the Redwood Creek watershed near the San Francisco Bay and Highway 101. Mr. Soo led the development of infrastructure GIS database, hydrologic modeling criteria, pipe survey and remote inspection programs, customized GIS tools, and 3-way linked (pipes, channels and 2D floodplains) models, improvements feasibility analysis, improvement design and cost estimate.

**Pudding Creek Sewer Forcemain Relocation, Fort Bragg Municipal Improvement District No.1 — City of Fort Bragg, CA |** Mr. Soo provided engineering evaluation, capacity and surge analysis, and progress reports to the Clean Beaches Grant Program, Monitoring and Reporting Plan (MP) and Quality Assurance Project Plan (QAPP). The project relocated 3,000 feet of 10-inch sanitary sewer force main to eliminate ongoing sewerage spills. A leak detection system equipped with a telemetry system was installed at the Pudding Creek crossing to detect and alert the local authority in the event of sewerage spills.

**Salinas West and East Area Drainage and Water Quality Analyses — City of Salinas, CA |** Mr. Soo was the Project Engineer overseeing the budget, schedule, and design of the drainage and water quality systems. The project is within the Reclamation Ditch watershed and was under the tight scrutiny of the Monterey County Flood Control and Water Conservation District (MCFWCWD) and Regional Water Quality Control Board (RWQCB) because of the existing sediment and flooding issues in Carr Lake. Hydromodification facility sizing procedures and analyses were applied to size on-site drainage facilities with XP-SWMM software. Low Impact Development and treatment control features were designed to mitigate the outflow water quality.



## Jonathan Kors, PE

Mr. Kors is a California registered Civil Engineer with 22 years of experience in water resources design and construction. He has been responsible for the design and analysis of flood control facilities throughout California using Department of Water Resources (DWR) Urban Levee Design Criteria (ULDC), Central Valley Flood Protection Board (CVFPB) criteria, as well as US Army Corps of Engineers (USACE) guidance and criteria. He has managed multi-disciplined teams in developing water resources projects and led teams of engineers in preparing designs (plans, specifications, and cost estimates) relating to new and rehabilitated facilities. He has performed inspections of flood control facilities, and prepared operation and maintenance manuals for completed works. He has coordinated the design and construction of projects with the USACE, DWR, CVFPB, and other agencies with review and oversight responsibility for projects within the Sacramento-San Joaquin Valley.

### EXPERIENCE

**West Sacramento Area Flood Control Agency (WSAFCA), 200-year Flood Program — Yolo County, CA** | Principal-In-Charge for Wood Rodgers work to evaluate the existing perimeter levee system of the City of West Sacramento and to develop and analyze alternatives for providing 200-year flood protection. Provided Quality Control over Wood Rodgers work, including the development of a Problem Identification Report, Alternatives Analysis Report, and Technical Analyses relating to the existing bulkhead structure of the West W.G. Stone Lock (Port of West Sacramento).

**Three Rivers Levee Improvement Authority (TRLIA), Yuba River (Goldfields) 200-year Setback Levee — Yuba County, CA** | Principal-In-Charge for Wood Rodgers' work to design a new setback levee at the south bank of the Yuba River in Yuba County, California. The Setback Levee is approximately 3.5 miles long and is aligned just south of active gold and aggregate mining operations identified as the Yuba Goldfields.

**Lower Cache Creek Feasibility Study — City of Woodland, CA** | Mr. Kors managed Wood Rodgers' work to develop and evaluate alternatives in support of the City of Woodland's Lower Cache Creek Feasibility Study. He provided quality control and oversight over preliminary design, which included a flood conveyance channel to intercept flood flows emanating from Cache Creek and convey them outside of the City's urban limit line, ultimately discharging them into the Yolo Bypass. As Project Manager, Mr. Kors coordinated the City's Project with the USACE, who was engaged in a parallel Feasibility Study for Lower Cache Creek. The project is ongoing and is currently seeking DWR funding to complete the feasibility study and initiate final design.

**City of Stockton, Bishop and Atlas Tract Urban Level of Protection Project — Stockton, CA** | Served on the Project Board of Senior Consultants for providing Independent Engineer Technical Review on the 200-year ULOP Levee Evaluations for Bishop and Atlas Tract. Evaluated findings relative to Civil analyses on the project. Providing written comments and participated in design review meetings.

**Solano County Water Agency — Rio Vista Flood Protection Pre-Feasibility Study** | Project Manager for Wood Rodgers' work in preparing a pre-feasibility study to identify the preferred 200-year flood protection project for the City of Rio Vista in Solano County. Reviewed and provided quality control over alternatives analyses, internal drainage evaluations, and Pre-Feasibility Study Report. Identified data needs for the pre-design phase of project.

**Reclamation District 2035 - On-Call Engineering Support — Yolo County, CA** | Mr. Kors currently performs District Engineer services for Reclamation District 2035 (RD 2035) in Yolo County, including providing routine consultation for system operation and maintenance, review of regional initiatives impacting RD 2035's system, and evaluating potential projects to enhance the system or otherwise provide benefits to the Reclamation District. Provided oversight for grant applications and the award of over \$10 million in grant funding for levee maintenance and rehabilitation projects.



### PROJECT ROLE

Will vary by project.

### TITLE

Vice President

### EDUCATION

BS, Civil Engineering, California State University Sacramento, 1995

### REGISTRATIONS/ CERTIFICATIONS

Registered Professional Engineer, California No. 59538, 1999

### WOOD RODGERS, INC. START DATE

April 1, 2002





**Reclamation District 2103 — Dry Creek Feasibility Study** | Managed Wood Rodgers work to prepare a feasibility study for the preferred flood control alternative at Dry Creek near the City of Wheatland, California. Oversaw problem identification analyses and remedial alternatives analyses prepared for the Study.

**Sacramento Area Flood Control Agency — Florin Creek Multiuse Basin** | Managed Wood Rodgers' work to design a 33-acre-foot detention basin constructed within Florin Creek Park adjacent to Florin Creek in South Sacramento, CA. Through the Project, Florin Creek Park provides the remaining element of flood control storage necessary to contain the 100-year flood event on Florin Creek. Mr. Kors also oversaw the development of hydraulic analysis to size and configure the detention basin and its weir connection to Florin Creek. The Project was constructed in 2015.

**South Urban Growth Area, Regional Storm Drainage Facilities Project (SLSPA-Phase 1) — City of Woodland, CA** | Project Engineer for design of the \$8.4 million Regional Storm Drainage Facilities Project. Coordinated preparing construction plans, specifications, and an opinion of probable cost for the design of a 360-acre-foot detention basin, approximately two and one half miles of trapezoidal channel, seven reinforced concrete box structures and related drainage facilities to serve the City's South Urban Growth Area. Prepared preliminary engineering for future facilities including pipelines and channels.

**City of Chico, General Services Department, One Mile Dam Replacement Project — Chico, CA** | Project Manager for the design and construction management of a project to replace the existing One-Mile Dam on Big Chico Creek with a new pneumatically-operated spillway gate structure. The project improved operation and maintenance requirements for the structure and improved fish passage through the adjacent fish ladder.

**Sacramento River Anadromous Fish Screen Project, Princeton-Codora-Glenn and Provident Irrigation Districts — Sacramento, CA** | Served as a member of the design team and as the on-site field representative for inspection, design liaison, administration of extra work, evaluating contractor claims, agencies coordination, construction coordination, and administering permit compliance for this \$10.5 million, 600 cfs project on the Sacramento River for the Princeton-Codora-Glenn and Provident Irrigation Districts. At the time of its completion, the PCGID/PID Anadromous Fish Screen Project was the fourth largest diversion on the Sacramento River.

**Butte Creek/Sanborn Slough Bifurcation Structure and the Rancho Esquon Fish Screen and Fishway Project, Ducks Unlimited — Chico, CA** | Performed construction observations/inspections on these projects involving construction of new fish ladder and fish screen systems at three locations on Butte Creek and Sanborn Slough.



## Kevin Gustorf, PE

Mr. Gustorf is a registered professional engineer with over 20 years of leadership and expertise in the water resources field. His experience in water resource engineering includes the planning, design, construction and management of a wide variety of projects for local municipal public works agencies, special districts and private sector clients throughout the state of California. His diverse project experience includes water and wastewater master planning, hydraulic modeling, hydraulic analysis and studies. He is an expert on several different modeling platforms and has conducted presentations on modeling throughout the Western U.S. Mr. Gustorf's design experience includes the design of water and wastewater pipelines, pump stations, lift stations, flow/pressure control facilities, wells, tanks and reservoirs. His projects have included both new designs, as well as the repair and rehabilitation of existing facilities.

Mr. Gustorf has managed projects ranging from small task orders, to large multi-discipline, complex projects with multi-million-dollar design fees. As project manager, he has maintained the goal to deliver quality projects for clients, meeting the financial expectations of the firm. He has managed hundreds of projects, all of which have met or come below budgets. In addition, clients have executed follow-up on-call agreements due to the high-level of service and quality.

His Leadership style is built on integrity, trust and commitment. He collaborates and communicates well and is dynamic and adaptable while maintaining quality and timely delivery of project services.

## EXPERIENCE

**SCLA Water and Sewer Pipelines — Victorville, CA |** Stirling Enterprises, LLC. Project Manager for this project which provided domestic water, recycled water and sanitary sewer pipeline design services for the Southern California Logistics Airport (SCLA). The project included the preparation of construction documents for more than 15 miles of pipelines. Prepared a total of 12 design packages. The work included pipelines and facilities in a total of eight roadways. The project required extensive coordination with the other utilities, the master developer, various on-site developers, and the city. A major challenge of the project has been phasing the construction of the new facilities to maintain service of the existing systems. The designs had to take into account incorporating portions of the existing systems while abandoning portions of the system.

**Citywide Sanitary Sewer Improvement Program (CSSIP) - Group 5, Project 2 — Anaheim, CA |** City of Anaheim. Project Manager for the City of Anaheim's Citywide Sanitary Sewer Improvement Program (CSSIP) Group Five which called for the replacement of undersized sewer pipelines on La Palma Avenue, Acacia Street, and Romneya Drive. The project requires upsizing of the existing 8-inch, 10-inch, and 12-inch diameter gravity sewer pipelines to accommodate buildout flows. The total length of pipeline replacement was 7,000 LF. The project has consisted of an extensive preliminary design which included an alternative alignment and diversion study and hydraulic model analysis. Along with the pipeline replacement design, other aspects of the project included Caltrans encroachment permit acquisition, conducting CCTV and review, major utility coordination, and traffic control. Final design is currently nearing completion.

**Citywide Sanitary Sewer Improvement Program (CSSIP) Group 6, Model 6 — Anaheim, CA |** Project Manager tasked with confirming, analyzing, and developing a recommended solution to mitigate the sewer system deficiencies. Project No. 2 within Group 6 of the Citywide Sanitary Sewer Improvement Program / Projects (CSSIPP) focused on improving the sewer collection system in Crescent Avenue, Loara Street and North Street. The existing sewer collection system consisted of approximately 4,300 linear feet of 8-inch, 10-inch and 12-inch gravity sewer pipeline.

**Sewer Improvement Projects 6, 70 and 71 — Garden Grove, CA |** Garden Grove Sanitation District. Project Manager for this improvement project included design services to replace undersized and aging sewer trunk lines serving a major portion of the city. Provided comprehensive design and supporting services for 4,400 linear feet of new 10-inch, 15-inch and



## PROJECT ROLE

Will vary by project.

## TITLE

Principal II

## EDUCATION

BS, Civil Engineering, Loyola Marymount University, 1999

## REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer, California No. 64755

Registered Professional Engineer, Nevada No. 018880

Qualified SWPPP Developer (QSD)

## PROFESSIONAL AFFILIATIONS

American Council of Engineering Companies (ACEC), Sierra Chapter President

American Society of Civil Engineers (ASCE), Member, 337465

American Water Works Association (AWWA), Member, 00511135

Association of Water Agencies Ventura County, Member

Orange County Water Association (OCWA), Member, 861

Water Environment Federation (WEF), Member, 17557223

Certified Trainer for Accredited Project Management Training Program

## WOOD RODGERS, INC.

## START DATE

April 23, 2018





24-inch pipeline. The project included removal of two siphons, the jack and bore construction beneath a storm drain channel, and a new connection to the Orange County Sanitation District (OCSD) Magnolia Trunk sewer line.

**Sewer Improvement Projects 7, 9 and 61 — Garden Grove, CA |** Garden Grove Sanitation District. Project Manager for the Garden Grove Sanitary District for Sewer Improvement Projects 7, 9 and 61. The project consisted of approximately 7,500 feet of new 15-inch, 18-inch, 21-inch and 24-inch pipeline that replaced undersized and aging sewer trunk lines that serve a major portion of the city. The alignment began at the intersection of Garden Grove Boulevard at West Street and continued east on Garden Grove Boulevard, north on Palm Street to Aspenwood Avenue, east on Aspenwood Avenue to Volkwood Street, and north on Volkwood Street to Twintree Lane. All existing sewer flows were maintained during construction through bypass methods.

**Carbon Canyon Dam Sewer and Pump Station Abandonment — Orange County, CA |** Orange County Sanitation District. Project Manager for engineering design for approximately 5,000 linear feet of 24-inch, 33-inch, and 36-inch gravity sewer pipeline that replaced a lift station and force main. The pipeline begins at the existing pump station in Carbon Canyon Regional Park and ends near the intersection of Rose and Vesuvius Drives. Approximately 1,500 linear feet of the pipeline is installed using a trenchless construction method called microtunneling. The pipeline was tunneled under a 100-foot-deep hill. The project included environmental analysis; geotechnical investigation; the preparation of a preliminary design report consisting of wastewater flow projections from all land tributary to the sewer; hydraulic analysis; alignment study; easement research; utility research; odor control analysis; flow monitoring; final design, including plans, specifications, and cost estimate; and minor traffic control.

**Pier C Sewer Improvements — Long Beach, CA |** Port of Long Beach. Project Manager to identify, locate and assess the existing sewer collection system on Pier C, and develop construction documents to properly abandon the facilities. Services included utility research and investigation, site assessment, CCTV, survey, and the preparation of construction plans, specifications and an engineer's cost estimate. Services also include engineering support during the bidding and construction phase. Performed a thorough field investigation and site walk with POLB staff and SSA staff to field verify existing utility locations, identify the environmental conditions, and preliminarily identify the location of the construction area. Ground Penetration Radar (GPR) was performed at 10 manhole locations to identify the horizontal location of all utilities within an approximate 15'x15' area around each manhole. Prior to the CCTV inspection, the abandoned pipelines were cleaned for the purpose of passing the CCTV equipment. Performed CCTV on the 8,025 LF abandoned gravity sewer lines after the cleaning was performed to document the existing condition, determine active lateral locations, and locate manholes.

**Sewer Improvement Group 4 - Western Avenue — Anaheim, CA |** City of Anaheim. Project Manager in charge of providing preliminary engineering and final design services for the replacement and upsizing of approximately 1,500 linear feet of an existing 10-inch gravity sewer pipeline. During the preliminary design phase, conducted detailed utility research and field investigations to identify the exact dimension, location, and connection of the existing facilities. Conducted a detailed hydraulic evaluation of the project area and upstream tributary to determine if flow diversions or alternative alignments were feasible to help reduce the project costs.

**Citywide Sewer Repair and Rehabilitation Program — Anaheim, CA |** City of Anaheim. Project Manager in charge of providing engineering design services for the Anaheim Citywide Sanitary Sewer System Repair and Rehabilitation Program Phase III Group 1 (West Anaheim). The project consisted of 91 individual sewer segments that required improvement due to pipe deficiencies, such as cracks and fractures, infiltration, and offset joints. Reviewed closed circuit television (CCTV) videos of each location and determined the best construction method to repair and rehabilitate the pipe segment.



## Karl F. Meier, PE

Mr. Meier has over 17 years of experience as both a consultant and as a District Engineer for a public water agency. Mr. Meier's past public sector experience required active involvement and management of the engineering, operations and maintenance activities for a public water system. As a consultant, he has extensive experience in the planning and design of water, recycled water and wastewater infrastructure including pipelines, force mains, pump stations, wells, pressure reducing stations and reservoirs. Mr. Meier also has significant master planning and hydraulic modeling experience for public agencies and special districts. Mr. Meier's planning and design expertise is complimented by his past construction management and inspection experience, where he was directly responsible for construction management and inspection services for public works projects ranging from water infrastructure to municipal park and ADA improvement projects. He is extremely proficient with a variety of software applications including the Microsoft Office Suite (Excel, Word, PowerPoint, Project), AutoCAD and is an expert in various modeling software platforms including Innovyze InfoWater, InfoSewer, H2O Map Water and H2O Map Sewer.

## EXPERIENCE

**Hillcrest and Silverado Highlands Pump Station Replacement Project — City of Napa, CA** | Mr. Meier is currently serving as the Project Manager responsible for supervising and coordinating all design elements for this project, which consists of the simultaneous design of two potable water pumping stations for the City of Napa. In the fall of 2017 the Atlas Fire started north of the City and burned over 51,000 acres including two of the City's potable water pump stations, the Hillcrest Pump Station and the Silverado Highlands Pump Station. Wood Rodgers is providing design services for the replacement of these pump stations. The pump stations are both located on space constrained sites that currently contain temporary pumping units, necessitating an efficient layout of the pumping facilities and sites to provide adequate access for future operations and maintenance activities. Both pump stations will include a new CMU block building and will have a diesel powered emergency generator. The pump stations will consist of skid mounted vertical inline pumps capable of pumping up to 1,000 gpm to meet fire flow requirements. The hydraulic conditions and demands of each pump station are unique, therefore the Hillcrest Pump Station has been designed with a total of three pumps, while the Silverado Highlands Pump Station has three main pumps and a small jockey pump to meet a wide range of hydraulic conditions.

**Rio Del Oro Sewer Lift Station — Sacramento Area Sewer District, CA** | Served as Project Engineer. The Rio Del Oro sewer pump station is an existing Sacramento Area Sewer District facility built in 1982 operating with two pump in a lead/lag manner with a firm capacity of 0.80 million gallons per day (mgd). Wood Rodgers prepared studies and improvement plans to upgrade the facility with modern features and three pumps to increasing its firm capacity to 2.2 mgd. Improvements included replacement and upsizing of all cast iron piping to ductile iron, vaults, valves, electrical control panels, and supervisory control and data acquisition system. The site grounds were reconstructed and enlarged to accommodate the expanded facilities including new concrete and asphalt, fencing and gates. A vault for new flow meters and pressure transmitted was added and connected to the existing dual force mains. The force main discharge was reconstructed with an enlarged manhole to safely accommodate the additional flows.

**Sewer System Infiltration Assessment and Repairs — City of Del Mar, CA** | Served as Project Engineer. The City of Del Mar (City) previously completed necessary improvements to re-direct wastewater discharges to the San Elijo Joint Powers Authority (SEJPA) Reclamation Facility in lieu of the City of San Diego to reduce overall wastewater disposal costs and increase recycled water in the region. In the process of the switchover, the City and SEJPA detected levels of Total Dissolved Solids (TDS) which exceeded SEJPA's treatment capabilities preventing the discharge of the City's wastewater to SEJPA's facilities. Through a field investigation developed by Mr. Meier, two primary sources of infiltration were found and repaired, ultimately allowing the City to discharge to SEJPA. One source was a crack in a sewer main and the other was a severely



## PROJECT ROLE

Will vary by project.

## TITLE

Associate, Engineer III

## EDUCATION

BS, Civil Engineering, New Mexico State University, 2003

## REGISTRATIONS/CERTIFICATIONS

Registered Professional Civil Engineer, California No. 71713

Registered Professional Civil Engineer, Washington, No. 52372

United States Army Corps of Engineers, Construction Quality Management (CQM) for Contractors Certification, SPK-USACE-02-18-00060

Occupational Safety and Health Administration, OSHA 30-Hour Construction Certification, No. 4163274

## WOOD RODGERS, INC.

## START DATE

January 7, 2019





cracked sewer manhole invert allowing ground/seawater intrusion. Tasks completed for this project included; meeting with the City and SEJPA staff to obtain an overview of the issues and develop a work plan, developing a systematic field TDS sampling plan using GIS and previous samples to trace the system, working with City operations staff in the field to collect and record TDS levels to modify the sampling plan on the fly and trace “hot spots” of TDS, developing a technical memorandum documenting the sampling, results and recommendations for next steps to resolve the issues, coordinating with CCTV contractors to clean, inspect and ultimately perform a trenchless point repair in a sewer main, investigating alternative traditional repair methods for the damaged sewer manhole and working directly with specialty contractors to negotiate contracts, develop a work plan and inspect the non-invasive sewer manhole repairs.

### **Torito Road Main Replacement/Extension Project — Montecito Water District, CA 2009 |**

The Torito Road Main Replacement/Extension Project consisted of replacing a deteriorating and undersized 1946 4-inch steel water main with a new 8-inch ductile iron main. The project included the installation of 1,850-ft of 8-inch ductile iron pipe and the construction of two pressure reducing stations. A new 8-inch water main was installed within Torito Road beginning near the District’s Toro Canyon Reservoir and was connected to the existing distribution system at El Pasillo Road. Extension of the new 8-inch main and connection to the distribution system at El Pasillo eliminated a dead-end main and provided the District with operational flexibility and system redundancy for an area that consists largely of pre-1930’s water mains that are susceptible to failures. Responsibilities for this project included all planning, hydraulic modeling, public outreach, design and construction management activities.

**Stadium Villa (Belcaro) Sewage Lift Station — Lake Elsinore, CA 2005 |** Served as Design Engineer responsible for hydraulic calculations and mechanical design of a sewage lift station with two 200-gpm submersible wastewater pumps. The project also included the design of an odor control system and a control building which houses a chemical injection system, emergency generator, and electrical and telemetry equipment.

**Integrated Water Resources Master Plan — City of Beverly Hills, CA |** Mr. Meier is the Project Engineer for this project to provide engineering services for the development of an Integrated Water Resources Master Plan for the City of Beverly Hills. His responsibilities include updating the sewer and storm drain GIS database, coordinating flow monitoring activities, developing and calibrating a sewer system hydraulic model, developing and calibrating a storm drain system hydraulic model, system analysis, project identification, master plan preparation and capital improvement development.

**Integrated Water and Wastewater Master Plan — Groveland Community Services District. 2019 |** Serving as the Lead Project Engineer responsible for the development of an integrated water and wastewater Master Plan. Work includes the evaluation and condition assessment of the District’s water and wastewater system infrastructure, demand projections, development of calibrated hydraulic models for the water and wastewater systems and development of a comprehensive CIP.

### **Sewer Master Plan and Hydraulic Model Update — City of Imperial Beach, CA 2018/19**

| Served as the Project Manager responsible for overseeing and directing the update of the City’s InfoSewer hydraulic model and sewer master plan and capital improvement plan. The City’s sewer collection system consists of eleven lift stations and over 50 miles of sewer collection mains. The hydraulic model was developed as an extended period simulation model, and was calibrated using field flow data as well as data collected during the rainy season to determine inflow and infiltration characteristics. As a part of the calibration process, base loading attributed to sea water intrusion along the coastal areas of the collection system was determined and included in the model. Specific tasks included in this project included focused evaluations of the lift station operations to optimize system performance and minimize possible sanitary sewer overflows for this system which is adjacent to the Pacific Ocean. Other tasks included developing multiple hydraulic model scenarios to identify system upgrades required in the immediate, near term and long term planning forecast examining both planned development and possible changes to land use/zoning.



## Jason Gornall, PE, LEED AP, ENV SP, QSD

Mr. Gornall has a wide range of project experience which includes planning, design, condition assessment, and construction management of new and/or the rehabilitation of existing conveyance, storage, and distribution systems. Collectively, he has designed more than 140,000 feet of pipelines up to 60 inches in diameter. He is experienced in alternatives analysis, detailed design cost estimating, and constructability reviews. Additionally, Jason specializes in managing agency and stakeholder coordination on high-density, urban-area projects.

As a certified LEED Accredited Professional, Jason is also an expert in the green building field with the technical knowledge, experience, and credibility to contribute to the design and construction, or operations and maintenance, of green buildings. In addition, he is an accredited ENVISION Sustainability Professional and certified trainer with the Institute for Sustainable Infrastructure. In this capacity, he promotes and trains industry professionals on the third-party sustainability validation process using the ENVISION Rating System.

## EXPERIENCE

**Melrose Avenue Sewer Rehabilitation — City of West Hollywood, CA |** Project Manager. Led the repair and rehabilitation of a sanitary sewer pipeline along Melrose Avenue and Robertson Boulevard in the City of West Hollywood. The project consisted of more than 5,800 linear feet of 8- to 12-inch diameter sewer pipelines. Pipeline rehabilitation methodology included cured-in-place-pipe (CIPP) as well as short segments requiring replacement (spot repair). This project was part of the second phase of a program to inspect and rehabilitate sewer pipelines in the Avenues District of West Hollywood.

**J-117 Ocean Outfall System Rehabilitation — Orange County Sanitation District, Huntington Beach, CA |** Project Engineer. In order to address operational issues and support future water recycling measures, this project includes inspecting and rehabilitating two reinforced concrete pipelines (84- and 120-inch diameter), evaluating the performance of two large pump stations (480 mgd and 240 mgd), and designing a new 200+mgd pump station and associated works. Upon completion, the rehabilitated ocean outfall system will be able to handle existing and future daily flows to maintain safe, reliable operations. Jason's responsibilities included the establishment of project controls, including project schedule, progress tracking, as well as the implementation of the project's quality control process.

**Primary Clarifier Replacement, Project No. P2-98 — Huntington Beach, Orange County Sanitation District, CA |** Task Lead. Jason is responsible for the bid document package for the interim repairs for the B and C-Side primary clarifiers. The primary treatment system at Plant No. 2 is categorized into three treatment trains by flow distribution structures designated as Sides A, B and C. To fulfill the District's agreement with the Orange County Water District to provide reclaimable flow to the Groundwater Replenishment System, the project will replace the four Side -A clarifiers as a separate non-reclaimable treatment train during normal flows. During peak wet-weather flows, all three trains will combine the entire flow for ocean discharge.

**Beverly Boulevard and Mid-City Sewer Rehabilitation — City of West Hollywood, CA |** Project Manager. Jason led repair and rehabilitation of a sanitary sewer pipeline along Beverly Boulevard in the City of West Hollywood. The project consisted of more than 3,200 linear feet of 8- to 15-inch diameter sewer pipelines. Pipeline rehabilitation included cured-in-place-pipe as well as short segments requiring replacement (spot repair). This project was the second phase of a program to inspect and rehabilitate sewer pipelines in the Avenues District of West Hollywood.

**TOS 37 Terminal Way Pumping Plant Rehabilitation, 2012–2017 On-Call Wastewater Engineering Services, City of Los Angeles, Department of Public Works, Bureau of Engineering, Los Angeles, CA |** Project Engineer. Jason was part of the design team for the rehabilitation of the Terminal Way Pumping Plant No. 671 for pump station enhancement. The project included replacing the existing pumps, suction and discharge piping, as well as stand-by generator with Tier 4 final certified equipment. Jason oversaw the field investigation,



## PROJECT ROLE

Will vary by project.

## TITLE

Principal II

## EDUCATION

BS, Civil Engineering, California State University, San Diego, 2008

## REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer, California No. 79942

ENVISION® Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure, 2015

Qualified Storm Water Pollution Prevention Plan Developer (QSD), California Stormwater Quality Association, 2016

Leadership in Energy and Environmental Design Accredited Professional (LEED® AP),

U.S. Green Building Council, 2009

## WOOD RODGERS, INC. START DATE

March 9, 2020





and hydraulic evaluations early in the project to support and develop rehabilitation recommendations.

**Avenues District Sewer Inspection — City of West Hollywood, CA |** Deputy Project Manager/Project Engineer. Jason oversaw the inspection team and reviewed inspection data for approximately 12,000 linear feet of 8- to 15-inch diameter gravity sewers (primarily vitrified clay pipe, but also included cast iron, ductile iron, and polyvinyl chloride) and 62 manholes. During condition assessment, he adhered to the standards of the National Association of Sewer Service Companies Pipeline Assessment and Certification Program and Manhole Assessment and Certification Program. The team completed inspection via CCTV using Panoramio™, a high-definition digital scanner to produce CCTV video. Jason developed recommendations for pipeline and manhole rehabilitation detailed in a condition assessment report.

**Newport Force Main Rehabilitation Project 5-60 — Orange County Sanitation District, Newport Beach, CA |** Project Engineer. Jason was deeply involved with the preliminary and final design for the rehabilitation of approximately 28,000 feet of force main along Pacific Coast Highway in Newport Beach. The force main consisted of two parallel, interconnected pipelines (22- to 36-inch diameter). Major responsibilities included investigating and mapping existing utilities, analyzing alignment alternatives, preparing construction sequencing (without the use of bypass pumping), pipeline design, developing the Preliminary Design Report and construction documents, as well as providing permitting support.

**Santa Ana Trunk Sewer Rehabilitation Project No. 1-17 — Orange County Sanitation District, Costa Mesa, Santa Ana, and Fountain Valley, CA |** Project Engineer. Jason worked with the design team to complete condition assessment and developed rehabilitation methods for the Santa Ana Trunk Sewer. The project involved inspection of 43 manholes and 17,500 feet of 42-, 48- and 60-inch diameter (lined and unlined reinforced concrete) pipeline. His duties included researching existing utilities, coordinating with a nearby railroad, preparing technical memoranda, assisting with cost estimates, and preparing construction documents.

**Agua Hedionda Lift Station, Force Main, and Interceptor Sewer — City of Carlsbad, CA |** Project Engineer. Jason was the engineer of record for two of the four bid packages currently under construction. The project included design plans, specifications, and construction estimates for a new 33-mgd sewage lift station, 3,800 feet of 36-inch diameter force main and approximately two miles of 54-inch diameter gravity sewer, including a bridge crossing at the Agua Hedionda Lagoon. The design involved a variety of potential pipeline construction methods, including open cut, horizontal directional drilling, and micro-tunneling. During construction, Jason is reviewing submittals, responding to requests for information, coordinating design changes, and managing subconsultants.

**Eastside Trunk Sewer — City of Rohnert Park, CA |** Staff Engineer. Jason assisted with the design of 20,000 feet of 21- to 41-inch trunk sewer. The project required inverted siphons at stream crossings, tunnels at the railroad crossing, and a freeway crossing. The City had initiated the Eastside Trunk Sewer Project to increase reliability and capacity of the critical conveyance system from the collection points to its terminal lift station. Construction of the existing sewer system began in 1956 and had a limited capacity to convey existing and projected future flows identified in the City's General Plan.

**Transbay Force Main Inspection and Rehabilitation — City of Coronado, CA |** Lead Project Engineer. Jason was responsible for the management and coordination of various contractors and vendors to inspect and evaluate multiple rehabilitation alternatives for a 3,600-foot force main. The force main begins on the east side of the City of Coronado, crosses under the San Diego Bay, terminating in a densely-populated business district known as Seaport Village (located in the City of San Diego). Jason oversaw the night-time inspection of the force main and prepared a rehabilitation report that included rehabilitation recommendation alternatives, and a lifecycle and cost analysis for each alternative. He also co-authored a paper and presentation that was published at the American Society of Civil Engineers' 2009 Pipelines Conference.



## Lucas C. Philbert, EIT

Mr. Philbert is a Project Engineer with several years of experience in water, wastewater, and recycled water projects. His project experience covers a wide range of assignments in planning, design, and project management, including: infiltration/inflow studies, hydraulic modeling, funding support, regulatory compliance, feasibility studies, plans and specifications, and construction management.

### WOOD RODGERS EXPERIENCE

**EDM 1 and EDM 2 Water Main Relocations — El Dorado Irrigation District, CA 2019 |** Project Engineer. As part of the Caltrans Camino Safety Improvement Project, Wood Rodgers is providing design services to relocate approximately 1,200 feet of 30" and 1,000 feet of 36" AWWA C303 concrete cylinder pipe outside of the roadway improvement limits. The project, which has an accelerated schedule, requires coordination with the EID as well as Caltrans to ensure all stakeholder requirements are met.

### NON-WOOD RODGERS EXPERIENCE

**Collection System Master Plan — Rohnert Park, CA |** Project Engineer. Author of report that includes current and projected sewer flow, modeling analysis on capacity deficiencies, and capital improvement projects for the following 5 years.

**66-Inch Sewer Trunk Main Alternatives Analysis, Napa Sanitation District — Napa, CA |** Project Engineer. Author of report that identified viable renewal and replacement alternatives for a heavily corroded 66-inch trunk. Provided direction for project planning and design on variations of the following methods; structural rehabilitation (sliplining, cured-in-place pipe (CIPP) lining, spray-applied structural lining), corrosion rehabilitation (spray applied non-structural lining, chemical injection), and parallel pipeline construction (open trench and microtunneling).

**Lift Station Condition Assessment Report, Marina Coast Water District — Marina, CA |** Project Engineer. Lead author on an evaluation of 12 lift stations for MCWD's Sewer Master Plan. Scope included an evaluation of pumps, discharge piping, pump lifting equipment, valves, valve pits, and lift station wet well and dry well configurations. Worked alongside a senior electrical engineer on power supply systems, transfer switches, pump starters, power generators, cables and conduits.

**Recycled Water Feasibility Analysis — Sonoma, CA |** Project Engineer. Assessed alignment alternatives of recycled water lines due to constructability, costs, and environmental impacts. Performed a field walkthrough, GIS analysis, and report on technical and financial feasibility.

**MCWD Recycled Water Master Plan Report, Marina Coast Water District — Marina, CA |** Project Engineer. Lead author on a Recycled Water System Evaluation for MCWD. Scope included evaluating historic and projected recycled water availability from the Monterey One Water WWTP, evaluating the available quantity and quality compared to the MCWD customer needs, and evaluating the impacts of recycled water for MCWD with the Pure Water Monterey Project.

**WWTP Water Balance Evaluation and Notice of Violation Assistance, Hidden Valley Lake Community Services District — Hidden Valley Lake, CA |** Project Engineer. In response to a Notice of Violation for sewage spills, provided a water balance for the WWTP. Developed flows based on run hours and pump curves provided by the district. Sized the district's WWTP Equalization Basin.

**Infiltration and Inflow Assessment Work Plan, Hidden Valley Lake Community Services District — Hidden Valley Lake, CA |** Project Engineer. Developed a strategy to identify and quantify sources of infiltration and inflow, prioritized repairs, and provided cost effective measures to reduce I/I for the District.

**West Napa Pump Station Capacity Analysis, Napa Sanitation District — Napa, CA |** Project Engineer. Analyzed a pump station at both firm capacity and overall capacity to compare with model results.



### PROJECT ROLE

Will vary by project.

### TITLE

Engineer II

### EDUCATION

MS, Water Engineering, California Polytechnic, San Luis Obispo, 2015

BA, Environmental Studies/Economics, University of California, Santa Cruz, 2008

### REGISTRATIONS/CERTIFICATIONS

Registered Engineer-in-Training, California No. 154328

### PROFESSIONAL AFFILIATIONS

California Water Environment Association (CWEA), Member

American Society of Civil Engineers (ASCE), Member

### WOOD RODGERS, INC.

### START DATE

September 19, 2018





**66-inch Trunk Alternatives Analysis, Napa Sanitation District — Napa, CA** | Project Engineer. Co-author on alternatives for the renewal and replacement of a 66 inch reinforced concrete trunk sewer (RCP).

**Sewer Master Plan — Rohnert Park, CA** | Project Engineer. Work included GIS updates, assessing the hydraulic capacity of the sewer collection system for existing and projected buildout flows, and developing a prioritized Capital Improvement Program.

**WRF Program Management — Morro Bay, CA** | Assistant Engineer. Assisted the City of Morro Bay in the program management of their Water Reclamation Facility Project. Program management included project schedule, budgeting, data management, and report writing.

**Wastewater Trunk Main Capacity Study — Gonzales, CA** | Assistant Engineer. Hydraulic Modeling through Bentley's SewerCAD software. Converted as-builts into Sewer CAD for Manning's Flows in order to design for average daily flow.

**Water Recycling Funding Program — Santa Paula, CA** | Assistant Engineer. Created an application package for the City of Santa Paula's Recycled Water Facilities Planning Grant. Wrote the study scope and coordinated the resolution for the application package.

**WWTP Influent Piping Modifications — Atascadero, CA** | Assistant Engineer. Drafted reducers, couplings, valves and other piping modifications for a Senior Engineer with AutoCAD 2016. Work included manifolds and recirculation to headworks.

**Sewer Master Plan — Atascadero, CA** | Assistant Engineer. Quality control of GIS atlas for the sewer system. Checked existing sizes on master plan chart with GIS files to make sure modeling was done with the correct pipe information.

**Preliminary Design, Headworks, South San Luis Obispo County Sanitation District — Oceano, CA** | Assistant Engineer. Coordinated with Pismo WWTP operators and vendors to discuss advantages and disadvantages of their bar screens for feasible options in Oceano.

**Onsite Wastewater Easements, Private Architectural Firms — Malibu, CA** | Assistant Engineer. Co-wrote an Advanced Onsite Wastewater Treatment System Summary Report for 24956 Malibu Road, 29140 Cliffside Drive, and 31276 Bailard Road. Report included geologic conditions for seepage pit and leach field capacity, fixture counts for wastewater flows and tank sizing, and proposed designs with manufacturer recommendations.

**Pressure Testing — Guadalupe, CA** | Assistant Engineer. Calculated and created spreadsheet for Sewer Low-Pressure testing. Minimum specified time required for a 0.5 psi pressure drop based on diameters and lengths of sewer line STA readings.

**Biofilter Design — Santa Maria, CA** | Assistant Engineer. Aided in the design and construction of an innovative biofilter system for removal of nitrogen from agricultural tailwater, funded by a Proposition 84 Agricultural Water Quality Grant. The project was designed with a hydraulic retention time of 2 days at 200 gpm, allowing good denitrification without reducing sulfates to sulfides. Assisted with pump and irrigation design, as well as markups for drafter.

**Water Resource Recovery Facility Pumps Request for Bid — San Luis Obispo, CA** | Assistant Engineer. Evaluated a bid for two vertical dry-pit centrifugal pumps for raw sewage. The Request for Bid was updated in accordance with the City of San Luis Obispo template, involving a Description of Work, Proposal Requirements, Contract Execution, and Estimated Quantities.

**Monte Verdi WWTF Opinion of Probable Construction Cost — Fresno, CA** | Assistant Engineer. Read engineering plans to sum up materials for cost opinions. Communicated with vendors on cost opinions for MBR systems, disk fine bubble diffusers, blowers and screens for the Monte Verdi — CSA44D Wastewater Treatment Facility.

**Riverstone Development, Root Creek Water District — Madera County, CA** | Assistant Engineer. Created submittal and testing logs of contractor submittals and testing for the Riverstone Development LLC Wastewater System; included were a Well and Tank in addition to the WWTP. Specifications include Leakage Testing of Hydraulic Structures, Submersible Pumps, and Electrical Controls.



## Satish Kumar, PE

Mr. Kumar has over a decade of experience in planning, analysis and design of flood control facilities, pump stations, levees, water quality infrastructure, and storm collections systems. Mr. Kumar has worked as a senior engineer and project manager on complex projects for both public and private sector clients.

### EXPERIENCE

**City of Alameda Northern Shoreline — Caltrans Sustainable Communities Grant** | Mr. Kumar assisted the City of Alameda with submitting a grant application for the Caltrans Sustainable Communities Grant (FY 21/22). The City of Alameda's Climate Action and Resiliency Plan (2019) includes an adaptation project for the northern shoreline area to protect the critical transportation infrastructure and the adjacent properties from a 100-year flood event and expected sea level rise.

The project goals are to act as a barrier to the current 100-year coastal flood entry to the local streets, portals, tubes and State Route 260 on the Alameda side, protect adjacent commercial and residential properties within the flood zone, act as a barrier using a moderate sea level rise scenario, become a Federal Emergency Management Agency (FEMA)-accredited project as a first step toward enabling the removal of the flood zone in the northern shoreline area and protect and enhance the San Francisco Bay Trail, waterfront access and other recreational and placemaking opportunities.

Wood Rodgers was tasked to better define the Northern Shoreline Adaptation project regarding the engineered solution and project planning, including work tasks, schedule, budget, needs, benefits and key stakeholders from start to finish.

**Port of Oakland - Stormwater Management and Tidal Flooding Vulnerability Assessment at the North Field Oakland International Airport — CA 2020** | Mr. Kumar was the team lead in the evaluation of the tidal flooding and seismic hazards for the North Field, assessment of the drainage system interaction between the North and South Fields, and recommended mitigation measures. Mr. Kumar prepared a memorandum summarizing applicable standards and oversaw development of an updated XPSWMM/Tuflow hydrologic and hydraulic model to evaluate the capacity of the existing system. Based on results of the hydraulic model, Capital Improvement Projects were recommended to remove hydraulic deficiencies, meet applicable criteria, improve efficiency, and reduce standing water (which decreased hazards created by the presence of birds).

**Zone 12 Drainage Master Plan — Alameda County Flood Control District, CA 2019** | Mr. Kumar was responsible for the development of a flood control infrastructure analysis and design for the entire Flood Control Zone 12 Watershed (Oakland, CA). This \$2.3 million project includes the development of a detailed MIKE-URBAN hydrologic model of the entire 80 square mile watershed, including over 90 miles of the closed conduit system, a MIKE-11 hydraulic model of the entire 20-mile open channel system, and a two-dimension MIKE-21FM model of the lower urban areas. Portions of the project were also completed using InfoWorks ICM. The project was documented in a Web-GIS portal.

**City of Redwood City, Redwood Creek Channel Improvements — Redwood City, CA 2019** | Mr. Kumar was the project engineer responsible for design plan development and construction support services for the improvements of concrete lined channel in the City of Redwood City. This APWA 2019 Project of the Year assessed channel structural integrity, prioritized section replacement, and developed improvement strategies, plans, specifications, and cost estimates for two of the channel reaches. This project was uniquely complex because of lack of City easements, uncertain property information, very constricted working space, restricted funding, limited contractor interest, lack of similar projects in the area to review, and many encroachments by the private property owners.

**Storm Water Pump Station Assessment Alameda County Public Works Agency — Alameda County, CA 2018** | Mr. Kumar was a project engineer for the assessment of mechanical condition and proposed improvements of 24 storm water flood control pump stations. Mr.



### PROJECT ROLE

Water Resources Engineer

### TITLE

Associate

### EDUCATION

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, 2009

### REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer, California No. 81934, 2013

### PROFESSIONAL AFFILIATIONS

FMA, ASCE Member, Chi Epsilon

### SOFTWARE/SKILLS

InfoWorks ICM, DHI, TUFLOW, HEC-RAS, HEC-HMS, XP-SWMM, StormCAD, FlowMaster, SMS, ArcGIS, Civil 3D, LID, BAHM, C3 compliance, Drainage Master Plans, Flood Control, Pump Stations, Land Development, Grant Applications

### WOOD RODGERS, INC. START DATE

June 7, 2010





Kumar's project responsibilities include: developing a GIS database to be used for modeling, developing detailed hydrologic and hydraulic models, pump performance evaluations, capital improvement recommendations, and evaluating flood damage cost estimates. This \$2.8 million-dollar project includes delivering pump station assessment final reports with capital improvement recommendations and prioritizations that were made based on the flood risk, equipment criticality, life cycle costs and existing condition.

### **Marin City Drainage Master Plan, Marin County Flood Control District — Marin County, CA**

| Mr. Kumar provided hydrologic and hydraulic modeling for the drainage study for the Marin City watershed for the Marin County Flood Control District. The study included a detailed hydrologic model of the entire 340-acre watershed, a hydraulic model of 8 miles of the closed conduit system, the tidal detention pond along Highway 101, and a two-dimensional model of approximately 90 acres of the lower urban areas near the pond. The model was calibrated and validated using data from historical events, and then used to evaluate the existing system, identify deficiencies, and develop a Capital Improvement Plan.

**Price Pump Station Grant Application — City of Redwood City, CA** | Mr. Kumar was the team lead for the City of Redwood City with a FEMA Building Resilient Infrastructure and Communities (BRIC) grant funding application with which awarded funding for \$7.5M for a pump station.

**Town of Danville Town-Wide Storm Drain System Management — Danville, CA** | Mr. Kumar is a project engineer for the town-wide Storm Drainage Master Plan of 160 miles of storm drainage systems and 18 square miles of catchment areas. The purpose of the project is to provide an inventory and condition assessment of the Town's drainage system. Scope of services include geodatabase and collector application refinement, data collection and review, and inspection plan development for the initial phase of the project. Through a risk-based approach, the Town's existing maintenance activities are being optimized with the condition assessment findings to prioritize facility rehabilitation and improvement projects.

**Port of Oakland - Oakland Airport FEMA Appeal — CA 2016** | Mr. Kumar was the Project engineer for the appeal of 2015 Preliminary Flood Insurance Rate Maps developed by FEMA, which show the Oakland Airport under several feet of water in a 1% AEP event. Mr. Kumar worked on a XP-SWMM 2D Analysis for a more refined definition of the existing 1% AEP flood risk and a better approach to setting the applicable BFEs and SFHA boundaries. The site-specific analysis also accounted for the Airport maintained drainage system, which is a network of over 15 miles of pipes and culverts, 5 miles of channels, 4 miles of levees, detention basins, and 4 pump stations. The resulting Appeal map significantly refined the 1% AEP flood risk at the Airport, and is currently undergoing review by FEMA.

**South Bay Salt Ponds Shoreline Levee Improvements, Alameda County Flood Control and Water Conservation District — Alameda County, CA 2014** | Mr. Kumar performed detailed analysis using linked 1-dimensional and 2-dimensional hydraulic models for 3,500 acres of salt ponds in the San Francisco Bay. Mr. Kumar conducted sensitivity and optimization analysis to aid in the design improvement of shoreline levees.

**Yuba River Two Dimensional Riverine Hydraulic Model, California Department of Water Resources — Yuba County, CA 2014** | Mr. Kumar was part of the team which developed a 32 square mile flexible mesh hydraulic model of the Yuba River and the confluence of the Feather River in Marysville, California. The 2-dimensional model was calibrated to historical events to gain insight on how the Yuba River flood stages impacted the goldfields adjacent to the river. Mr. Kumar developed and processed model results delineating the floodplain for several magnitude events.



## Tim Chamberlain

Mr. Chamberlain is a Senior Environmental Planner with Wood Rodgers, specializing in the project delivery through the environmental and permitting phases. Mr. Chamberlain has extensive experience preparing environmental technical studies and environmental documents and managing a team of environmental specialists from project concept through construction. Mr. Chamberlain has extensive experience in a variety of aspects of planning, including land use, environmental planning, and community outreach and engagement. Mr. Chamberlain is experienced in CEQA and NEPA analysis, document preparation, as well as presentations to planning and transportation commissions, city councils and other involved agencies and stakeholders. As a former Caltrans employee, Mr. Chamberlain received extensive training and experience in Intermodal Transportation Management System and GIS based programs.

## EXPERIENCE

### ROADWAY

**Yucca Loma Rd/Yates Rd/Green Tree Blvd Transportation Improvement Project — Apple Valley, CA** | Associate Environmental Planner. This project provides a new 2-mile long transportation corridor connecting portions of the Town of Apple Valley to the City of Victorville through a portion of unincorporated San Bernardino County. The project includes widening Yucca Loma Road from two to four lanes, construction of a bridge across the Mojave River, widening and realignment of Yates Road from two to four lanes, construction of a bridge over the BNSF railroad tracks, and construction of an extended Green Tree Boulevard connecting to Hesperia Road. Mr. Chamberlain prepared Section 4(f) Evaluation, Community Impact Assessment, and co-authored the joint CEQA/NEPA environmental document (Initial Study/Environmental Assessment). He helped guide the Section 106 process including Phase 1.5 subsurface testing and extensive Native American outreach. He also prepared a Section 6(f) Evaluation of the proposed parkland conversion process and coordinated with the State Office of Grants and Local Services and National Parks Service to obtain the necessary approvals. Mr. Chamberlain coordinated with Caltrans to obtain CEQA and NEPA approvals for this complicated project.

**Green Tree Boulevard Extension — Victorville, CA** | Lead Environmental Planner. This project is a roadway gap closure that would connect Yucca Loma Road in the Town of Apple Valley at the east end of the project with Hesperia Road and Green Tree Boulevard. The project will provide approximately 1.5-miles of new roadway and a 600-foot-long bridge over the BNSF Railroad. Green Tree Boulevard will include four travel lanes from Park Avenue to a realigned Ridgecrest Road. The improvements would then narrow to two-lanes as they extend westward over the BNSF railroad and connect to Hesperia Road at the existing Green Tree Boulevard. Mr. Chamberlain was responsible for environmental permits, NEPA revalidation, environmental coordination and pre-construction assistance and management.

**Temescal Canyon Road Widening — Riverside County, CA** | Lead Environmental Planner. This project widened the existing 2-lane road to 4-lanes, consistent with the corridor north and south of the project area. Mr. Chamberlain led a team of environmental specialists to provide the County with all necessary environmental technical studies and CEQA documentation. The project required impacting sensitive biological habitats and Mr. Chamberlain led the joint project review process utilizing the County's Western Riverside Multiple Species Habitat Conservation Plan for coordination with USFWS and CDFW. CEQA was completed for this project in 2017 followed by environmental permit approvals in 2018. The project started construction in 2019 and is scheduled to be completed in 2020.

**Alder Avenue, Linden Avenue, Valley Boulevard, Cactus Avenue, Randall Avenue Road Widening — Rialto, CA** | Lead Environmental Planner. Mr. Chamberlain managed the environmental process for these road widening projects. He coordinated with the client and managed environmental subconsultants. Mr. Chamberlain prepared Initial Study/Mitigated Negative Declaration CEQA documents for each project as the primary author and in coordination with on-staff environmental specialists (biologist, archaeologist, noise



## PROJECT ROLE

Environmental

## TITLE

Associate

## EDUCATION

BA, Political Science, University of California, Los Angeles, 2005

## EXPERTISE

Project Management  
Environmental Project Scoping  
Environmental Constraints Analysis  
Public Outreach / Engagement  
NEPA / CEQA Documentation  
Environmental Technical Studies  
Environmental Construction Support  
Environmental Permits  
Endangered Species Act Consultation  
Cultural Resource Compliance  
Habitat Restoration  
Mitigation Plans  
Section 4(f) Evaluation  
Farmland Conversion  
Community Impact Analysis  
Caltrans/FHWA Coordination

## PROFESSIONAL AFFILIATIONS

APWA

## WOOD RODGERS, INC. START DATE

October 1, 2020





specialist, hazardous waste specialist, etc.). Final environmental documents for each project were provided to the City on schedule. He provided environmental specification consultation during preparation of the 100% PS&E to ensure environmental commitments were included as necessary during construction.

### WATER RESOURCES

**Reclamation District 1001 Auxiliary Pump Station — Sutter County, CA |** Lead Environmental Planner. This project involves construction of a new pump station at the Lateral 4 Canal, piping water through the levee into the Natomas Cross Canal. The auxiliary pump station is needed to provide flood risk relief in the event of power outages at the main pump station which does not have backup power. Mr. Chamberlain led a team of environmental specialists in preparing environmental technical studies and a CEQA Initial Study/Mitigated Negative Declaration. He coordinated with the Central Valley Flood Protection Board and Army Corps of Engineers to provide the necessary environmental documents to support a 408 Permit for encroachment into a federal levee. He also provided the necessary environmental analysis in support of a NEPA approval from FEMA who is providing federal funding for the project.

**Nord Flood Risk Reduction Feasibility Study — Butte County, CA |** Lead Environmental Planner. This project will evaluate the Big Chico Creek Watershed and identify improvement projects that could reduce flood risk. Mr. Chamberlain is leading a team of environmental specialists to prepare an Environmental Constraints Analysis for a wide range of potential future projects. Further, his team will provide full service environmental support for construction of a bifurcation structure at a critical location where flooding is a major concern. Both the feasibility study and bifurcation structure projects are on-going in 2020.

**Manteca Dry Land Levee Project — San Joaquin Area Flood Control Authority, CA |** Lead Environmental Planner. This project is to evaluate the location and size of a dry land levee to protect the southern portion of the City of Manteca from major flood events associated with the San Joaquin River. Mr. Chamberlain is leading a team of environmental specialists to develop an Environmental Constraints Analysis, assess environmental impacts for numerous alternatives, prepare environmental technical studies, and set up the next phase of the project where an Environmental Impact Report is anticipated. This project is still in the early planning and development phase with construction planned for 2023 or later.

**Alvarado Creek Restoration Project — San Diego, CA |** Lead Environmental Planner. This project involved restoration of a section of Alvarado Creek in the City of San Diego. The creek had been overgrown with invasive and non-native plants and a build up of sediment was preventing drainage flows from passing at the required rates. The project removed excess sediment and invasive plant species as well as provided a replanting plan with native, low-maintenance plant species. Mr. Chamberlain provided assistance and coordination with the project biologist for development of the restoration plan and coordinated with the regulatory agencies to gain approval for this restoration effort. The project also provided mitigation for another public works project elsewhere in the City which incurred impacts to jurisdictional waters and riparian habitat.

**Marysville and Yuba City Boat Ramp Dredging — Marysville/Yuba City, CA |** Lead Environmental Planner. Project Manager. This project involved dredging soil from areas around the Yuba City and Marysville Boat Ramps. Sediment from upstream flows had built up around these boat launching facilities preventing their use for predominantly recreational use of the Feather River. Mr. Chamberlain led an environmental team to provide full environmental services to Sutter County and the City of Marysville including preparation of environmental technical studies, CEQA documentation, and environmental permits for the proposed action. Permitting included coordination with CDFW, Army Corps of Engineers, and Section 7 Consultation with the National Marine Fisheries Service to provide protection for federally listed anadromous fish species that spawn up the Feather River. Mr. Chamberlain also managed the environmental construction support process for these projects which included use of fish screening and turbidity curtains to minimize impacts to protected fish.



## Azin Sharafeddinnouri

Mr. Sharafeddinnouri is a GIS Analyst with 12 years of experience working with the ESRI ArcGIS stack that includes design, implementation and administration of Enterprise GIS, data management, data analysis and solution design. He has extensive expertise in GIS projects related to local governments, public safety, oil and gas, and water resources. Mr. Sharafeddinnouri is skilled in design and managing relational databases and Enterprise Geodatabase (SDE) in MS SQL Server.

He is proficient in ArcGIS Enterprise (Portal for ArcGIS, ArcGIS Server, ArcSDE), ArcGIS Desktop, Safe FME Desktop, Autodesk Map 3D, 3D Analyst, Spatial Analyst, Network Analyst, GeoEvent, SQL Server 2016, PostgreSQL & PostGIS, Python, and ArcPy.

### EXPERIENCE

**ArcGIS Enterprise Implementation — Merced, CA** | GIS support for this project assisting Merced Irrigation District (District) in implementing ArcGIS Enterprise within its organization. ArcGIS Enterprise is a full-featured mapping and analytics software platform which was used to help manage the District's assets. ArcGIS Enterprise was used for collaboration and flexibility at the center of the District's Geographic Information System (GIS) allowing work to be organized and shared on any device, anywhere, at any time.

**Port of Oakland - Stormwater Management and Tidal Flooding Vulnerability Assessment at the North Field Oakland International Airport — CA** | Provided GIS support to develop a more refined analysis and methodology to appeal the 2015 Preliminary Flood Insurance Rate Maps which FEMA developed showing the Airport under several feet of water in a 1% AEP event. The appeal would also provide a more accurate assessment of flood risk to allow the Port to prioritize and plan for specific flood management projects. A detailed two-dimensional model and analysis were developed to provide a more refined definition of the existing 1% AEP flood risk and a more correct approach to setting the applicable BFEs and SFHA boundaries. The site-specific analysis also took into account the interior drainage system that the Airport maintains on the site which includes a network of over 15 miles of pipes and culverts, 5 miles of channels, detention basins, 4 miles of levees and 4 pump stations that reflect the detailed conveyance within the Airport. The resulting Appeal map significantly refined the 1% AEP flood risk at the Airport.

**Town-wide Storm Drainage Master Plan - CIP A-330 — Danville, CA** | GIS support for engineering services for the Storm Drainage Master Plan (Town Wide) for the Town of Danville (Town). The purpose of the project is to provide an inventory and condition assessment of the Town's drainage system. Scope of services include geodatabase and collector application refinement, data collection and review, and inspection plan development for the initial phase of the project. Phase 2 includes desktop asset inventory, survey inspection, and inventory, CCTV, and inventory. Phase 3 includes geodatabase content development and data reconciliation, training, and a simplified hydrologic and hydraulic analysis. Phase 4 includes the condition assessment and improvements, rehabilitation and replacement method determination, condition improvements prioritization, and the draft and final reports.

**West Marin Drainage Rehabilitation — Marin County, CA** | GIS support for the condition assessment, conceptual design, and environmental reconnaissance services for 120 stream culvert crossings on approximately 14 miles of roadway for rehabilitation. The condition assessment was performed in accordance with FHWA's Culvert Assessment and Decision-Making Procedures (FHWA Procedures Manual). Assisted with detailed culvert capacity assessment to reflect realistic and accurate flow performance across culverts and to minimize unnecessary or overly conservative culvert sizing.

**City of Menlo Park Drainage Master Plan — City of Menlo Park, CA** | Provided GIS support for this project to access storm drain facility conditions and capacity, review operations and maintenance activities, determine capital improvements, assess the impacts of effective 2019 FEMA Flood Zones, and incorporate Municipal Regional Stormwater Permit (MRP) requirements for 70 miles of storm drainage systems and 10 square miles of urbanized catchment areas.



### PROJECT ROLE

GIS Support

### TITLE

GIS Analyst

### EDUCATION

BS, Water Engineering (Irrigation and Drainage) Mazandaran University, Sari, Iran, 2003

### WOOD RODGERS, INC. START DATE

June 24, 2019





**Goldfields 200-Year Setback Levee Construction — Yuba County, CA** | Provided GIS support services to support for processing of submittals, RFIs, and design clarifications/revisions for approval by the Construction Management (CM) team, support for soliciting input from the CM, geotechnical designers, agency reviewers, or others with review and approval responsibility.

**Lower Silver Creek CTP Response to FEMA's Comments — Santa Clara, CA** | Provided GIS for responses and supported addressing FEMA's comments to the study and revising the ICM models, GIS geodatabase and reports. Additional information for Lake Cunningham floodwall improvements and outfall details and South Babb Creek improvements were added to the ICM hydraulic models as part of the scope of work. The addressed comments were used to submit revised packages to FEMA through the Mapping Information Platform.

**Alameda Zone 12 Drainage Master Plan Geodatabase — Alameda County, CA** | Provided GIS support to complete the GIS geodatabase that will allow for detailed representation in Deficiency Maps that reflects the results of the modeling efforts. The Deficiency maps showed the location of storm drain and open channel infrastructure where the above criteria are not met. Wood Rodgers developed the "completeness definitions" for the Zone 12 database in the "Appendix 8- Database Quality Check Protocol". Wood Rodgers then used this to verify the portion of the geodatabase that was developed by the District.

**On-Call GIS Services for the City of Santa Clara — Santa Clara County, CA** | Mr. Sharaf was the GIS Analyst for the City of Santa Clara. He performed the following services:

- Re-architecting and deploying Enterprise GIS of City of Santa Clara
- 911 Dispatch integration with GIS at the City of Santa Clara
- GIS Asset Management Integration for Storm Drain at the City of Santa Clara
- Public Safety GIS integration at the City of Santa Clara
- Location-allocation analysis with ArcGIS & Python for City of Santa Clara Fire Department

**On-Call GIS Services for Chevron Corporation — Houston, TX** | Mr. Sharaf was the GIS Analyst for the Chevron Corporation. He performed the following services:

- Deploying and administrating ArcGIS for Server with 1000ish map and image services
- Deploying and administrating Portal for ArcGIS and federated ArcGIS Server for several business units
- Supporting spatial ETL with Safe FME Desktop
- Supporting ArcGIS Desktop application



## Kevin Krajewski, PE — V&A Consulting Engineers

### EXPERIENCE

#### Flow Monitoring

**East Bay Municipal Utility District (EBMUD) Inflow Investigative Services — Oakland and Berkeley, CA** | EBMUD is conducting a study of various inflow investigation services within its satellite agencies to try to find and mitigate sources of inflow and determine which types of inflow technologies are most effective within the EBMUD collection system. V&A has conducted both smoke testing and flow monitoring in support of the EBMUD inflow investigative services project. V&A installed approximately 101 flow meters within the EBMUD satellite agencies gravity sewer system lines ranging in size from 6- to 36-inches, in the Cities of Oakland and Berkeley. This project was time sensitive as the goal of the project was to capture wet weather flows. To satisfy this requirement, for each phase of the project the meters were installed within six working days.

**City of San Jose Temporary Flow Monitoring — San Jose, CA** | For the past 10 years, V&A has provided on-call flow monitoring services and data analysis for the City's sewer and stormwater facilities. The scope of work includes the installation of flow monitoring equipment inside sanitary sewer and storm manholes, remote data retrieval and removal of equipment, and creating reports with results and recommendations. In 10 years of on-call flow monitoring, V&A provided the City of San Jose sanitary sewer flow monitoring services on 39 separate flow monitoring projects that totaled 762 flow monitoring sites.

- **City of Oakland: Sanitary Sewer Flow Monitoring for EPA Cease and Desist Order — Oakland, CA**
- **Port of Oakland - Oakland International Airport Sanitary Sewer and Lift Station Flow Monitoring — Oakland, CA**
- **City of Redwood City Flow Monitoring and I/I Analysis Services — Redwood City, CA**
- **City of Riverside Master Plan Flow Monitoring — Riverside, CA**
- **San Bernardino Municipal Water District (SBMWD) 2017 / 2018 Master Plan Flow Monitoring at 20 Sites 1 Month — San Bernardino, CA**
- **City of King City Wastewater Facilities Plan and Collection System Master Plan Flow Monitoring — King City, CA**
- **City of Tulare Master Plan Flow Monitoring — Tulare, CA**
- **City of Lemoore Master Plan Flow Monitoring — Lemoore, CA**
- **City of Morro Bay Master Plan Flow Monitoring — Morro Bay, CA**



### PROJECT ROLE

CCTV & Field Work

### TITLE

Senior Project Manager

### EDUCATION

B.S., Mechanical Engineering,  
University of California — Davis, 1995

### REGISTRATIONS/CERTIFICATIONS

Mechanical Engineer, CA (M31744)  
Asbestos Awareness  
Confined Space Entry-Certified  
Basic CPR/First Aid

### PUBLICATIONS

"You Can't Squeeze Wine from a Stone: The Success of Napa Sanitation District's I&I Reduction Program," WEFTEC Annual Conference, 2017 (Damron A., Winkelman M)  
"Collection System Flow Monitoring Technology at EBMUD," WEFTEC Annual Conference, 2009  
"Sacramento Regional County Sanitation District Interceptor Sulfide Generation Model," WEFTEC Annual Conference, 2007  
"Ahead of The Flow," Public Works Magazine, 2006  
"Oro Loma Sanitary District Bockman Lift Station: Flow Monitoring and I/I Analysis — A Case Study," CWEA Conference, 2004  
"Cost-Effective Collection System Assessment," HWEA Collection Systems Conference, 2003

### V&A START DATE/YEARS OF EXPERIENCE

1996 / 27 years





## Nicole Kwan, PE, ENV SP — V&A Consulting Engineers

### EXPERIENCE

#### Condition Assessment

**City of Richmond Force Main Systems Condition Assessment — Richmond, CA** | V&A performed condition assessment of five force mains within the City's sanitary sewer collection system. The first phase consisted of a thorough document review and site review of the force mains. Information collected during Phase 1 was used to develop the necessary scope and prioritization for the detailed investigations of the subject pipelines in Phase 2. V&A problem-solved uncertain alignments and feature locations using investigative logic and coordination with CCTV and pump station crews. V&A performed broadband electromagnetic (BEM), ultrasonic (UT), wastewater sulfide sampling, concrete pH, soil corrosivity testing and visual assessment to provide recommended rehabilitation actions.

**City of San Mateo Dale Avenue Pump Station Wet Wells and Force Mains Condition Assessment — San Mateo, CA** | V&A performed a condition assessment of the wet wells in preparation for the facility rehabilitation. V&A was later retained to also assess the force mains condition. The condition assessment consisted of visual observations, UT testing, BEM, SPR, pole-mounted zoom video camera and CCTV of the structure, force mains and associated components.

**City of San Jose Sanitary Sewer System Manhole Condition Assessment and Flow Monitoring — San Jose, CA**

#### Program Management

**City of Oakland Root Control Program Evaluation — Oakland, CA** | V&A evaluated the root risk for City's sanitary sewer system and formed recommendations for future root foaming and CIP activities. Possible correlations and effectiveness of past activities were statistically analyzed using GIS data on the sewer system, vegetation, soil type, sanitary sewer overflows, CCTV, V&A's flow monitoring in the City, etc. Formed a framework to assign rating systems and foam recommendation.

#### Flow Monitoring

**East Bay Municipal Utility District (EBMUD) Inflow Investigative Services — Oakland and Berkeley, CA** | EBMUD is conducting a study of various inflow investigation services within its satellite agencies to try to find and mitigate sources of inflow and determine which types of inflow technologies are most effective within the collection system. V&A has conducted both smoke testing and flow monitoring in support of the EBMUD inflow investigative services project. V&A installed approximately 101 flow meters within the EBMUD satellite agencies gravity sewer system lines ranging in size from 6- to 36-inches, in the Cities of Oakland and Berkeley. This project was time sensitive as the goal of the project was to capture wet weather flows. To satisfy this requirement, for each phase of the project the meters were installed within six working days.

**City of San Carlos Flow Monitoring Services — San Carlos, CA**



### PROJECT ROLE

CCTV & Field Work

### TITLE

Project Engineer

### EDUCATION

M.S., Environmental Engineering, with emphasis on Fluid Mechanics, University of California Berkeley, California, 2014

B.S., Civil and Environmental Engineering with emphasis on Urban Infrastructure, Reliability and Management, Rice University, Texas 2011

### REGISTRATIONS/CERTIFICATIONS

Civil Engineer, CA (C86828)

Envision Sustainability Professional (ENV SP)

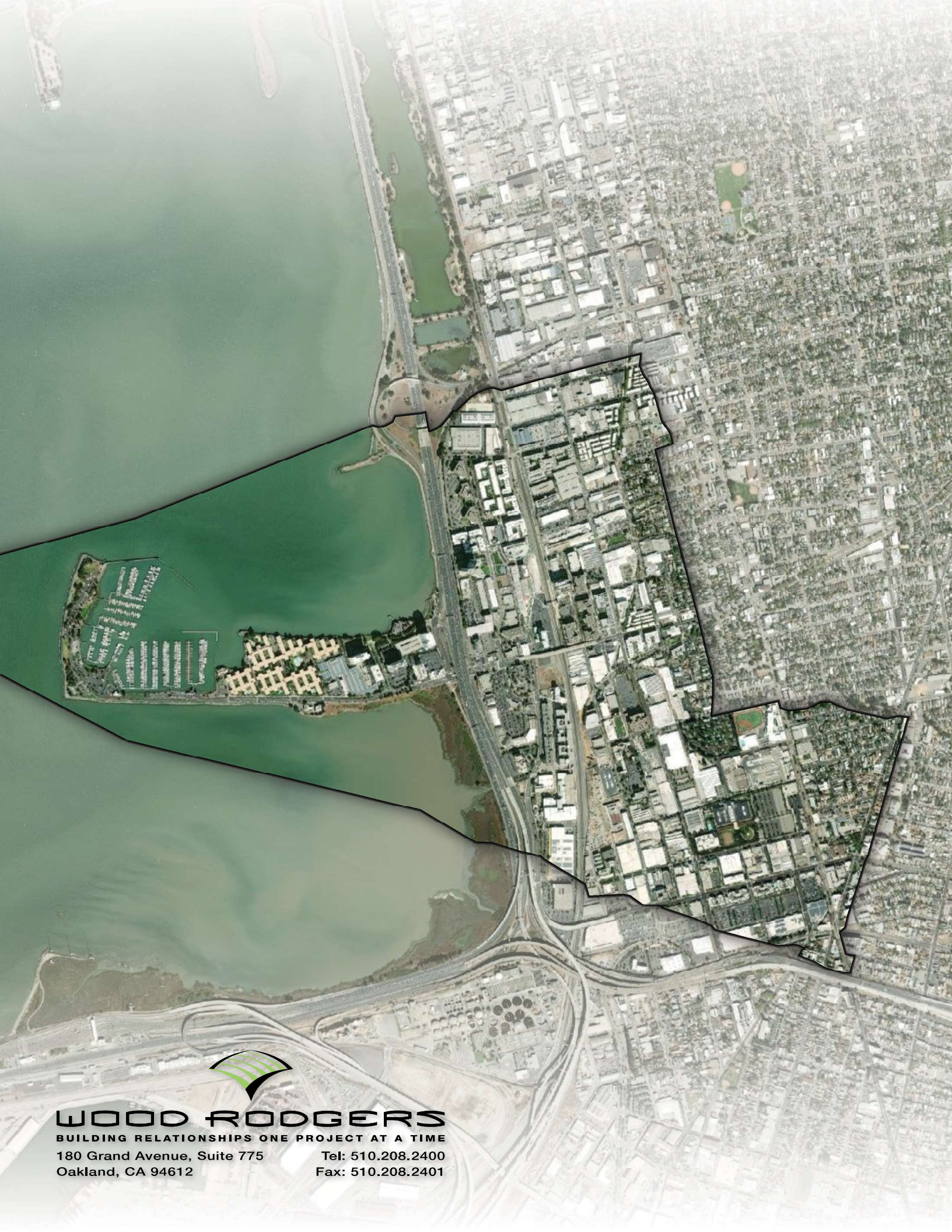
Confined Space Entry

Basic CPR/First Aid

### V&A START DATE/YEARS OF EXPERIENCE

2014 / 9 years





**WOOD RODGERS**

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

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