TJCAA Experience Bank - Structural

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	Water Treatment	**Wastewater Treatment**	**Reservoir/Storage**	**Pump Station**	**Storm Water**	**Chemical Storage**	**Groundwater Wells**	**Water Transmission**	**Solid Waste**	**Industrial**	**Commercial**	**Office Building**	**Transportation**	**Svcs During Construction**	**Seismic Upgrades/ Eval**	**Landslide Mitigation**	**Power Generation**
Cucamonga Valley Water District - 1630 East Recycled Water Pump Station. Structural design of a 40'x74' concrete masonry unit pump station housing 5 pumps and an electrical room for equipment. Structure consisted of masonry slumpstone walls with metal truss pitched roof and asphalt shingles.				■													
City of Pleasanton - Vineyard Avenue Pump Station. Provided engineering and construction services for the design of a 2,176 sq. ft. concrete masonry unit pump station/electrical building on a constricted site with strict architectural/aesthetic requirements.				■										■			
Ironhouse Sanitary District – Ironhouse WWTP Expansion Project. Structural design of a 9-mgd expansion, including an influent pump station, headworks, anoxic/aeration basins, membrane bioreactors, backpulse tank, blower/electrical/generator/chemical building, UV/Effluent pump station, and a solids handling building.		■		■		■											
City of Santa Cruz - Graham Hill Water Treatment Plant. Design of electrical building.	■													■			
Napa Sanitation District - Recycled Water Pipeline and Pump Station Design. Design of booster pump station and support structures for pipeline crossings.				■				■									
Wochholz Wastewater Treatment Plant - Improved Effluent Salinity Project. Designed new loading dock and chemical storage areas.		■				■											
MCWD – SCADA Consulting Services. Structural support for review of existing system deficiencies and design of new equipment			■	■													
Redwood City Glenwood Pump Station Improvements Project. Design of modifications to existing outdoor pump station to add a building and standby generator.				■				■						■			■
City of Sunnyvale – Advanced Floatation Tank Replacement Project. Field investigation of tank vulnerability to seismic events.		■	■											■	■		

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Cal Water Service Company - RPVD PV-37 Energy Recovery Project. Structural design of a concrete foundation slab with short retaining walls on three sides for support of a new hydro-power driven generator at the CalWater existing pressure reduction station (PV-37) in Rancho Palos Verdes, California. Prepared structural drawings suitable for public bidding for the construction.																	■
City of Burbank - Northern Burbank Recycled Water Main Extension Project. Structural design of a new 8-inch diameter ductile iron pipe crossing at Burbank Western Channel along Cohasset Street. The 38-ft pipe span was supported on the existing concrete channel walls at each end. Pipe crossing needed to be coordinated with existing constraints including an existing 16-inch diameter pipeline crossing at the same location.								■									
Washoe County Department of Water Resources – South Truckee Meadows Water Treatment Facility Project. Designed single story, masonry block buildings: 6,700-sq. ft. operations building and 2,250-sq. ft. maintenance shop.	■											■					
Contra Costa Water District - Bisso O&M/ Administration Buildings Emergency Generator Project. Foundation design for a standby generator.	■													■			
Delta Diablo Sanitation District – Bridgehead Emergency Storage Basin and Pump Station. Structural design of a sewage pumping station and a 1 million gallon cast-in-place emergency storage basin. Included a concrete building 26 feet below grade and an above grade, two story, 1,720 sq. ft. masonry block building with a metal truss built-up roof.			■	■										■			
Monte Vista Water District - Pump Station. Provided engineering for the design of concrete masonry block pump station. The project was performed under an aggressive schedule, completed within four weeks from start to finish.				■													
City of San Bruno – Reservoirs. Structural assessment of The Cunningham Water Tank No. 1, built in 1964, a 2 million gallon, welded carbon steel tank; and the Glenview Water Tank No. 3, built in 1950, a 2 million gallon, prestressed concrete tank.			■												■		
Inland Empire Utilities Agency - 1630 East Recycled Water Pipeline Segment A Project. Pipeline and turnouts for raw water distribution.								■									
Sacramento County Airport System – Domestic Water Connection and Distribution System Piping Project. Provided engineering for the design of prestressed concrete pile foundation system supporting two 1.5 MG, prestressed concrete water storage reservoirs.			■														

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Delta Diablo Sanitation District - Pittsburg Recycled Water System. Working with multiple agencies, provided structural design and construction services for a 1 MG welded steel recycled water tank, main pump station building (prefabricated masonry unit), and a booster pump station of prefabricated, fiber-reinforced plastic**.**			■	■										■			
Vopak Jet Fuel Storage Facility - Tank Inspection. Performed structural assessment of three jet fuel storage tanks located in Wilmington, California. The tanks experienced some degree of damage during the October 16, 1999 Hector Mine earthquake. The inspection ascertained whether damage to the interior aluminum floating cover was attributable to the seismic event.			■												■		
City of Livermore - Airport Avenue Pump Station. Structural engineering consultation in support of the refurbishment of an existing pump station.				■													
Contra Costa County Sanitation District – Acacia Avenue Pump Station. Structural engineering consultation in support of the refurbishment of an existing pump station with a capacity of 4 mgd.				■													
Contra Costa County Sanitation District - Fairview Avenue Pump Station. Structural engineering support for the modification and expansion of an existing submersible pump station with a capacity of 12 mgd.				■													
Central Sanitation District, Orinda - Storm Water Pump Station Refurbishment. Prepared seismic evaluations and retrofit designs for the upgrade of the Lower Orinda Pump Station. The expansion of this circa 1950 pump station increased the flow capacity from 14 mgd up to 21 mgd - the estimated capacity required for operation through 2035.				■	■									■	■		
Monte Vista Water District, Montclair, CA – Aquifer Storage and Recovery Well No.30: Structural design of 32'x32' concrete masonry building. Project was performed under a very aggressive schedule, completed within four weeks.				■			■										
Dublin San Ramon Services District – Northern Dougherty Valley Zone 3 Potable Water Facilities Reservoir 300B and Pump Station 300C. Engineering services during construction of 1.5 MG prestressed concrete reservoir and concrete masonry block building.														■			
Dublin San Ramon Services District – Dougherty Valley Reservoir 200B. Design of structural elements associated with 1.5 MG, prestressed concrete potable water reservoir. Client elected to use Performance Specification approach for design.			■											■			

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City of Brentwood – Surface Water Treatment Facility, Phase I. Structural design of 30 x 35 ft., 35-foot-deep wet well and concrete masonry electrical building.	■		■														
Contra Costa Sanitary District – Walnut Creek Renovations Phase 2. Structural evaluations of existing traffic bridges within Walnut Creek, CA.					■										■		
City of Pleasanton - McCloud Water Tank. Structural assessment of a prestressed concrete tank built in 1953 and development of rehabilitation recommendations.			■												■		
Ito Cariani Sausage Company (ICSC), Hayward CA – Seismic Vulnerability Evaluation. Seismic vulnerability evaluation and retrofit recommendations for ICSC 10,000 sq. ft. Hayward facility.											■				■		
Sacramento Regional County Sanitation District, Sacramento Regional Wastewater Treatment Plant – 2E/2F Substation Replacement Project. Structural design of 93'x47' concrete electrical building.		■															
City of Folsom Drinking Water Improvement Project. Structural design of a 10 mgd WTP expansion. Specific elements included Actiflo pretreatment structure, filters, bypass vault, and partially buried, prestressed concrete chlorine contact tank.	■					■								■			
Orange County Water District – Groundwater Replenishment Project. Pile foundation consulting services for the Groundwater Replenishment Project (GWR). GWR is a water reuse project funded jointly by the Orange County Water District and the Orange County Sanitation District, and is planned to ultimately reuse approximately 140,000 acre-feet per year of advanced treated wastewater. The project supplements existing water supplies by recharging the Orange County Groundwater Basin with a new, reliable, high quality source. The project augments County supply for irrigation and industrial use. Protecting the Basin from further seawater intrusion is another goal of the project.	■	■		■										■			
Dublin San Ramon Services District. Engineering services during construction for a prestressed concrete water storage tank and masonry block pump station. Structural elements of this project were not designed by TJCAA.														■			
City of Livermore – Zone 1 Water System Improvement. Structural design of a masonry block pump station and prestressed concrete water storage reservoir.			■	■													
City and County of San Francisco Department of Public Works. Seismic evaluations and retrofit designs for a conceptual design report for the upgrade of the North Point Wet Weather Facility, San Francisco, California					■										■		

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Vallejo Sanitation and Flood Control District - Austin Creek Pump Station. Structural evaluation of the existing Austin Creek Pumping Station: a 40 x 24 ft., cast-in-place concrete structure constructed circa 1956.					■									■	■		
Brentwood WWTP Expansion Project - $40 million construction. Structural design of a 10 mgd WWTP expansion in the city of Brentwood, CA. Process facilities included an influent pump station, headworks, denitrification facilities, oxidation ditches, primary clarifiers, chemical area, tertiary filters, chlorine contact basins, cascade aerators, and an outfall structure. Additional structures included an administration building, electrical area, and solids handling facilities. Soil densification using deep dynamic compaction and stone piles was required due to high ground water and loosely compacted soil. Provided engineering services during construction.		■												■			
Delta Diablo Sanitation District - Calpine Recycled Water Facility - $11 million construction. Design of structural elements for a 13-mgd recycled water facility. This facility provides cooling tower water for two new power generation facilities. Process elements included influent pump station, clarifiers, filters, chlorine contact basins, effluent pump station, and a 2 MG, welded steel reservoir. Additional facilities include a chemical storage area and electrical building. Provided engineering services during construction.		■		■		■								■			
ADAC – Nuclear Medical Camera Installation. Structural design of support system for 6,500 lb. nuclear imaging camera installed in an existing office building.												■					
Montebello Land and Water Company - Well No 14 Pump Station. Structural design of a concrete masonry building to house the equipment associated with this well head and pump station.				■			■										
Fountain Valley Pump Station - Upgrades. Preliminary design for seismic upgrade and minor modifications for two existing pumps stations.				■											■		
Zoe Avenue Pump Station. This 34-mgd pump station consists of a large wet well with the bottom invert depth at 50 feet below grade. Stormwater pumps are contained within a 2,360 sq. ft., masonry block building constructed atop the wet well. The pump station wet well walls are constructed of 36-inch diameter cast-in-drilled-hole piles with an internal coating of shotcrete.				■			■							■			
City of Mountain View – Shoreline Sailing Lake Project. Design of structural elements for wet well submersible pump station for transferring water from the delta into the sailing lake.				■										■			

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Sunnyslope County Water District – Ridgemark WWTP Expansion Project. Structural engineering support for the modification and expansion of existing facility. Included headworks, membrane bioreactors, blower building and solids handling storage tank. Project included refurbishment and modifications of two existing submersible pump stations.		■	■	■										■			
City of Pacific Grove - Reconstruction of Wastewater Pump Station 12. Design for relocation of an above grade emergency generator into a below grade, precast vault. Structure had to meet strict aesthetic requirements.				■													
City of Stockton – River Island Sewage Pump Station. Structural design of a 15'x35' cast-in-place concrete wet well submersible pump station, approximately 30 feet below grade. With 50'x40' masonry block electrical and chemical storage building.				■		■											
Moulton Niguel Water District - Crown Valley Highland Pump Station. Structural design of a 400 sq. ft., 12 mgd, below grade, concrete vault housing three recycled water pumps and associated instruments and controls.		■		■										■			
Moulton Niguel Water District - Alicia Recycled Water Pump Station. Structural design of a 770 sq. ft., 9 mgd, concrete masonry building to house two recycled water pumps and associated instruments and controls.		■		■										■			
North Open Space Well. Structural design of 850 sq. ft., masonry block building to house a well head pump station. Building was designed and constructed to look like a house.				■			■							■			
South Montebello Irrigation District - Well No. 7. Structural design of a concrete masonry building to house a 700 bhp gas engine and pump system associated with a wellhead pump station.				■													
Diablo Hills Reservoir: Preliminary design of a below grade, cast-in-place reservoir for the Contra Costa Water District. This structure was sited beneath the 8th hole of an existing golf course.			■														
South Sacramento - Design Build Pump Station. Structural design of a wet well sited 50 feet below grade and the associated masonry block operations building. The pump station was a pre-manufactured item that was anchored alongside the wet well.														■			
Montebello Land and Water Company - Well No 14 Pump Station. Structural design of a concrete masonry building to house the equipment associated with this well head and pump station.				■			■							■			
Delta Diablo Sanitation District - Chemical Storage Area. Structural design of a chemical storage area for a WWTP. Chemicals involved include sodium hypochlorite and sodium bisulphite.		■				■								■			

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Hill Brothers Chemical - Chemical Containment Area. Structural design of a chemical storage and containment area in San Jose, CA. The facility included specialized truck and container loading and unloading areas. Chemicals involved include HCL, H_2SO4, and NaOH.						■			■	■							
Calleguas Water District - Water Storage Reservoir. Preliminary design for the structural elements of this 5.0-MG water storage reservoir. Structural evaluation included alternatives for prestressed concrete, cast-in-place concrete and steel. Both circular and rectangular configurations were considered. Provided technical consultation during the final design phase of the project.	■		■														
City of Pittsburg - Water Storage Reservoir. Preliminary design for replacement of an existing 6-MG water storage reservoir at the WTP. The design included two prestressed concrete reservoirs. A 1-MG reservoir was used as finished and backwash water storage, while a second 5-MG reservoir was sited in the footprint of the existing 6-MG tank. The design required two reservoirs to minimize the impact on the WTP.	■		■														
Department of the Navy, Camp Pendleton - $8.5 million construction. Structural modifications to seven existing WWTPs and two existing lift stations for the Navy in Camp Pendleton, CA. Upgrades included addition of clarifiers, digesters and pump stations. Additional modifications include improving accessibility to various process units and upgrading existing operations buildings. Provided engineering services during construction.		■		■		■								■			
City of Mesa, AZ - Gilbert/Mesa South WRF Lift Station. Structural design of a 14.33-mgd reclaimed water lift station. This facility included circular equalization basins, a 30 x 100 ft., 40-foot-deep dry well and provisions for future expansion, and addition of treatment facilities.		■		■													
City of Seattle - Tolt Water Filtration Plant. Structural design of a 120-mgd water filtration plant sited on the Tolt River east of Seattle. Process elements of this design/build/operate project consisted of ozone, flocculation, and filtration basins. Supporting facilities included a 7.4 MG, buried concrete clearwell, chemical storage, and plant operation facilities.	■		■			■						■		■			

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CCWD - Bollman WTP Expansion. Structural design required to add ozone treatment to the existing Bollman WTP in Contra Costa County. Specific structures included ozone contactors, ozone generation buildings, various foundations, secondary containment for new chemical storage areas, and a pier foundation for the proposed backwash tank. This project included special seismic design criteria specifically tailored for CCWD's projects and seismic upgrade of an existing 11 MG, buried concrete reservoir.	■		■	■		■								■	■		
City of Mt View - Crittenden Pump Station. Structural design of a concrete, CMU pump station for this 600-hp pump station and set sell facility. The project included a standby power generation and fuel storage facilities.				■	■									■			
Leucadia Water District - Bataquitos Pump Station. Structural design of a concrete block building to house electrical and control equipment for an existing 750-hp pump station.				■										■			
Vallicitos Water District - Twin Oaks Reservoirs. Technical review of two 33 MG, prestressed concrete reservoirs for water storage. Technical review of these circular prestressed concrete reservoirs was conducted on the final design documents for the project. Emphasis was focused on the seismic design elements of the project.			■	■													
City of Southgate - Westside Reservoirs & PS. Structural design of two above grade, steel water storage reservoirs along with an associated pump station. Stand-by power and chemical storage were included in the project.			■	■		■											
City of Allentown, PA - WWTP Upgrades. Structural design for various upgrades to an existing WWTP designed in the 1920s. The project site was in a floodplain and required the use of rock anchors to prevent floatation of the basin foundations.		■		■		■								■			
City of Wallingford - Overflow Reservoir. Structural design of a two celled, buried concrete reservoir.		■	■														
VWD - Mt. Bell Reservoir Evaluation. Seismic evaluation of an existing bolted steel reservoir.	■		■												■		
SCVWD - Reservoir Evaluation. Seismic evaluation of two existing above grade water storage reservoirs. Both reservoirs were approximately 3 MG and required recommendations for mitigating potential damage caused by the design seismic event.	■		■												■		
City of Redlands - 1350 Zone Reservoir. Structural evaluation and design of a 3.9 MG prestressed concrete water storage reservoir. Evaluation included alternatives for prestressed concrete, cast-in-place concrete, and steel.	■		■												■		

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Calleguas Water District - Springville Reservoir. Structural design of a cast-in-place access vault for the 48-inch outlet pipeline connection. Special attention was necessary to minimize the possibility of undermining the reservoir embankment and access roadway.	■		■					■							■		
Calleguas Water District - Pipeline Fault Crossing. Structural evaluation of alternatives for crossing an active fault with a large diameter RCP pipeline. Solutions required assessment of the design level earthquake and anticipated lateral movement at the fault crossing. Developed alternatives for flexibility to accommodate the anticipated movement.								■							■		
Penske Motorsports - 13' Dia. Pipeline Protection. Structural design of a concrete protection structure for an existing 13-foot-diameter RCP pipeline owned by the Metropolitan Water District. Protection of the pipeline was required by MWD for construction of the new California Speedway. The concrete structures were placed under the 30-foot-tall embankments for the proposed racetrack. An additional protection structure was required under a rail line proposed as part of the same development.								■	■	■				■			
City of Irvine - Santiago Canyon. Structural design of a groundwater remediation facility in Orange County, CA. Project included concrete foundations and seismic anchorage of various pieces of equipment.							■		■	■				■			
Hong Kong Airport. Structural protection for multiple well monitoring points within the active runways of the Hong Kong airport. Design criteria included requirements for loading caused by planes and strict limitations on closure times for construction.							■		■	■				■			
Simi Valley WWTP - CoGen Facility. Structural modifications to an existing operations facility; required for the addition of a co-generation facility at the wastewater treatment plant.		■															
City of San Buenaventura, WRF Upgrades Project - $11 million construction. Seismic evaluation of existing structures within this 14-mgd WWTP. Due to the close proximity of the facility to an active fault, the design level earthquake for the project was approximately 50 percent higher than typical UBC criteria. Modifications were designed to upgrade the existing structures to withstand the design level earthquake. Provided engineering services during construction.		■		■		■								■	■		
City of Burlingame - Donnelly Tanks. Assessment and coating design for two 50,000 gallon welded steel storage tanks.			■														
City of Santa Clara - Pipe Bridge. Design for a bridge carrying recycled water pipe.								■									

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City of Livermore - Pump Station Technical Review. Technical review of the structural design portion of a proposed concrete masonry pump station.				■													
City of Santa Cruz - Graham Hill Water Treatment Plant. Structural design of redwood baffling system designed to control the flow of water through the flocculation basins. The new horizontal baffles were designed to be removable and supports were sited to avoid conflict with the existing horizontal flocculator paddle wheels.	■																
City of Santa Fe, NM - Transfer Station. Structural design of 500-ton/day solid waste transfer station. The concrete tilt-up structure included 200 foot, free span frames and a buried concrete tunnel system with hoppers loading the hauling trucks.									■								
City of Ontario, CA - Transfer Station. Structural design of 2,000-ton/day solid waste transfer station. The concrete tilt-up structure included 240-foot free span frames and a buried concrete tunnel system with hoppers loading the hauling trucks.									■								
City of Folsom - Folsom WTP Expansion. Structural design of multiple phases of expansion for the existing water treatment plant. Expansions include addition of sedimentation basins, chemical storage facilities, and filtration basins.	■					■									■		
Madras, India. Provided structural technical review of a 250 km water transmission pipeline, associated pump stations, and treatment plant to provide potable water to Madras.	■							■									
Port Hueneme - Sewage Lift Station. Structural design of a concrete sewage lift station. The project was sited in sandy material with high groundwater. Caisson construction was used to eliminate the need for dewatering the site, which was near the Pacific Ocean.		■															
City of Tustin - Tustin Desalter. Structural design of a concrete masonry building for housing a desalting facility. The project included chemical storage, wet-well, and a mechanical room for the RO equipment.				■		■	■										
Chino Basin Municipal Water District - Carbon Canyon WWTP. Structural design of upgrade to an existing WWTP. Included addition of a below grade, cast-in-place concrete storage reservoir and a 24-inch-diameter pipeline crossing at an existing highway bridge.		■	■	■													
City of Glendale, CA - Groundwater Remediation. Structural design of facilities associated with groundwater remediation. Elements included seismic anchorage, operations facilities, chemical storage, groundwater well vaults, and a 240 foot, clear span pipe crossing over an existing water channel. Required mat foundations to accommodate potential settlement from the existing unconsolidated soils.				■		■	■		■	■				■	■		

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Union Pacific RR - Chemical Containment Area. Structural design of a chemical storage and containment area for a train refueling station in Yermo, CA.						■			■	■				■			
City of Vallejo - Lake Chabot Spillway. Structural design of the new concrete spillway for Lake Chabot. Elements of the spillway included a required critical water elevation to maintain proper function of the water treatment facilities at Marine World Africa USA.			■		■									■			
Marin Municipal Water District - WTP Upgrades. Structural design associated with the addition of sodium hypochlorite to three existing WTPs. The project included concrete masonry buildings to house the stored chemicals and associated pumping equipment.	■					■								■	■		
MWD - Ozone Addition. Provided technical guidance with the structural aspects of the predesign phase of adding ozone to two of the District's WTPs. Combined capacity of the two plants was over 1,000 mgd.	■																
Delta Diablo Sanitation District - Plant Operations Center. Structural design of a 40,000 sq. ft. plant operations center for the District's WWTP. Project included a two story, 28,000 sq. ft., steel frame office building and a 12,000 sq. ft., tilt-up concrete shop and warehouse structure.		■										■					
Santa Clara Valley Water District - Water Quality Regulation Compliance Project. Preliminary design for modifications to three WTPs. Specific project elements included recommendations for seismic upgrades to the WTPs and mitigations for limiting potential damage caused by a potentially active, 300-foot-deep landslide under the Penitencia WTP. Additional upgrade elements included the addition of ozone facilities and additional chemical storage facilities.	■		■			■											
Santa Clara Valley Water District - Toxic Gas Ordnance Project. Modification to three WTPs for the addition of sodium hypochlorite.	■					■											
Alameda County Water District - WTP No. 2 (30 mgd) - $30 million construction. Structural design of a WTP located in the seismically active south San Francisco Bay Area. The facilities include an operations building, separately housed chemical storage, and ozonation system. Unique aspects of this project included the process block concept (common wall construction) in which all of the basins were incorporated into one structure, and the special architectural requirements necessary for the residentially sensitive area in which it was constructed. Provided engineering services during construction.	■		■			■						■		■	■		

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City of San Francisco - San Andreas WTP Expansion Phase 2. Services during construction for the expansion and modification of the existing WTP. Expansion included addition of ozone treatment, capacity increase from 120 to 180 mgd, and an 8 MG prestressed and vertically post-tensioned concrete water storage reservoir. A unique aspect of this project was the 0.7 g lateral force requirement due to its close proximity to the San Andreas Fault.	■		■											■			
City of Pittsburg - Water Storage Reservoir. Pittsburg WTP reservoir repair involving improvements to a 6-MG reservoir, with a wooden roof and concrete floor and sides, originally constructed in 1953. The hopper-bottom reservoir was leaking about 4,000 gal/min through cracks in the floor prior to the repair.	■		■														
Contra Costa Water District - Reservoirs and Pump Station. Structural design of various water storage reservoirs and their associated pump stations for CCWD and developers within the District's management area. Projects include: -- Northgate Reservoir, 0.61 MG below ground cast-in-place concrete; -- Rancho Paraiso Reservoir, 0.4 MG below ground cast-in-place concrete; -- Oakhurst Reservoir, 0.75 MG below ground cast-in-place concrete; -- Irish Canyon Reservoir, 0.83 MG below ground cast-in-place concrete; -- Keller Ranch Reservoir, 0.48 MG below ground cast-in-place concrete; -- Power Line Reservoir, 0.4 MG below ground cast-in-place concrete; -- Eagle Peak Pump Station, concrete block with wood roof; -- Northgate Pump Station, concrete block with wood roof; -- Clubhouse Pump Station, concrete block with wood roof; -- Irish Canyon Pump Station, partially buried concrete; structure.	■		■	■										■			
City of Pleasanton - Kottinger Ranch Reservoir. Structural design of a 1.0 MG, welded steel, above ground water storage reservoir with a concrete masonry pump station.			■	■													
City of Pleasanton - Canyon Meadow Pump Station. Structural design of a concrete masonry building for this 6-mgd pump station.				■													
City of Vallejo - Shadow Ridge Pump Station. Structural design of a concrete masonry structure for a 60-hp pump station.				■													
City of Rialto - Rialto Reservoir. Structural design of a 6.0 MG, partially buried, vertical post-tensioned, prestressed concrete water storage reservoir.			■											■			

TJCAA Structural Experience Bank																	
Project Description	**Service Areas**																
	Water Treatment	**Wastewater Treatment**	**Reservoir/Storage**	**Pump Station**	**Storm Water**	**Chemical Storage**	**Groundwater Wells**	**Water Transmission**	**Solid Waste**	**Industrial**	**Commercial**	**Office Building**	**Transportation**	**Svcs During Construction**	**Seismic Upgrades/ Eval**	**Landslide Mitigation**	**Power Generation**
City of Poway - Poway Pump Station. Structural review of the design for a concrete masonry pump station.				■													
Contra Costa County Sanitary District - Outfall Repair. Outfall repair as part of a 7.5-mile-long outfall rehabilitation project.					■												
City of Vallejo - Clearpointe Reservoir. Engineering services during construction of an above ground, 1.6 MG, shotcrete, prestressed water storage reservoir.			■											■			
City of Pittsburg - WTP Expansion. Engineering services during construction for the expansion of a WTP from 8 to 16 mgd.	■		■			■								■			
City of Santa Cruz - Neary Lagoon Pump Station. Engineering services provided during the construction of an outfall structure, a new 150 mgd, 750-hp pump station with a full stand-by power facility, and a seawall. The majority of the project was next to the municipal wharf in Santa Cruz.				■	■									■			
East Bay MUD - Modification to Bridge Support. Structural design necessary for the modification of one of the Oakland-San Francisco Bay Bridge approach support structures. Modifications were required to relocate the Adeline Interceptor. This project required coordination with Cal-Trans to obtain approval for passing a 60-inch-diameter pipe under one of the support structures, which was built in the late 1930s.								■					■				
Texaco Oil - Coal Gasification Plant. Structural design of a sludge handling facility consisting of a pre-engineered metal building enclosing two truck unloading bays and a control center over a concrete basement that houses the sludge processing equipment. Also included are two sludge storage silos over 100 feet tall.									■	■							
City of Oxnard - Sludge Drying Facility. Structural design of a 3 acre, pre-engineered, metal building with a translucent roof to facilitate sludge drying.		■															
CP Organics - Seismic Evaluation of Chemical Storage. Seismic evaluation for ten chemical storage tanks with secondary confinement for an industrial client in the City of Newark.						■			■	■							
Chinese Petroleum Corporation - Oil Storage EIR. Seismic evaluation portion of the environmental impact assessment for construction of ten welded steel reservoirs to store 211 MG of petroleum products in Taiwan.			■												■		
City of Fontana - WWTP Preliminary Design. Predesign for the Fontana WWRF, a proposed 30-mgd WWTP in Southern CA. Included measures to mitigate potential impacts of a contaminated site.		■		■													

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Seattle Metro - Pipe Crossing. Structural design of a two-span, 300-foot pipe bridge to cross the Cascade River in Renton, WA. The design incorporated two 36-inch-diameter steel casings that acted as a composite section to cross the river. A 24-inch sewer line and 16-inch water line were placed inside the casing pipes.								■									
St Paul, MN - Flood Wall. Provided construction documents for a sheet pile flood wall along the Mississippi River in MN. The flood wall was necessary to implement a soil remediation project.										■							
City of Benicia - Reservoir Upgrade. Seismic evaluation and repair of an existing 2.3-MG water reservoir. The reservoir is an above grade, steel tank originally designed and built in 1970. Replacement of the ringwall foundation was required as part of the seismic mitigation measures.	■		■												■		
City of San Bernardino - Devil Canyon WTP. Preliminary design of a 20-mgd WTP on a site divided by the San Andreas Fault. Preliminary information provided anticipated ground accelerations in excess of 1.0 g. The structural portion of the work included estimating preliminary sizes of this 20 mgd, modular design water treatment facility.	■		■			■									■		
San Jose Water Co. - Microfiltration Upgrade. Structural design required to retrofit an existing conventional water treatment facility sited on a landslide in a 40 x 40 ft. metal building. The project replaced the existing equipment with membrane treatment equipment. The design included means of retaining the existing building in order to minimize the impact on the neighborhood and special foundations to mitigate future movement by the active slide.	■					■									■	■	
County of Maui - WTP Upgrade. Structural design of the operations building for a WTP.	■					■						■					
City of Corona, Water Storage Reservoir. Structural engineering for the design of a 4.7 MG prestressed concrete reservoir.			■														
Honvest Towers, HI - Architectural Façade. Design of the structural attachments for the architectural metal panel facade of a 17-story office building.											■	■					
Hyatt Regency Resorts - Seismic Damage Review. Structural consultation regarding the cause of damage to the 1.5-year-old Hyatt Regency in Burlingame, CA. Evaluations showed the damage was caused by the 1989 Loma Prieta earthquake.											■				■		
City of Burlingame - WWTP Expansion. Structural design of pile-supported structures, including primary clarifiers, new headworks, and a two-story office/laboratory building.		■										■					

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Oakley Water District - WTP Upgrades. Structural design of a concrete block pump station over the wet well of this 16-mgd WTP. Project also included a 2.5 MG, welded steel reservoir and minor modifications to the operations building and chlorine storage area.	■		■	■		■								■			
City of Walnut Creek - Civic Park Bridge. Developed structural alternatives to upgrading an existing 100-foot bridge to handle an HS20 loading. The alternatives included upgrading the existing turn-of-the-century bridge or replacing it with a new cable-stayed suspension bridge.													■				
City of Gresham, OR - WWTP Expansion. Structural design for elements of a 45-mgd WWTP. Included headworks facility, primary and secondary clarifiers, aeration basin, solids handling facility, two digesters, and a digester control building.		■															
City of Vancouver, WA - WWTP Upgrade. Minor structural improvements to an existing WWTP.		■															
Seattle Metro - Westpoint WWTP. Assistance during the construction of prestressed digesters and a digester control facility.		■					■										
Hyperion Wastewater Treatment Plant. Structural design of a 12,000 sq. ft., three-story control building; a 15,000 sq. ft., compressor building with a travelling bridge crane; an electrical control building, and foundations for a chemical tank farm.		■				■						■					
Dublin-San Ramon Services District, CA - Seismic Evaluation. Seismic evaluation and design of upgrades for four steel reservoirs. The reservoir sizes ranged from 0.5 MG to 4 MG.			■												■		
Raytheon Corporation - Seismic Evaluation. Seismic evaluation of Raytheon's manufacturing facility in Mountain View, CA. This one-story, tilt-up building required a seismic evaluation because of the existence of a tremendous amount of air handling/cleaning equipment that was installed on the roof during the life of the structure. Due to the lack of structural plans for the facility, extensive field reconnaissance was necessary prior to analysis of the structural system. A complete gravity load evaluation of the roof was included within this seismic report.									■	■					■		
Target Department Stores - Seismic upgrade. This 70,000 sq. ft., tilt-up building required a seismic evaluation due to the modifications of the exterior shear walls during Target's takeover of Gemco department stores. Included design of two structural steel braced frames, which were intended to take the place of 160 feet of concrete shear wall slated for demolition during the building modification phase of the project.											■				■		

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City of Walnut Creek - Seismic Upgrade of Restaurant. Seismic upgrade to an over 100-year-old building that was originally one of the main fire stations for Walnut Creek. Construction materials within the system ranged from reinforced concrete block to unreinforced terra cotta brick.											■				■		
Target Department Stores - Conversion from Gemco to Target. Structural design necessary for the conversion of various Gemco stores to Target department stores. Included seismic upgrades, modifications to roof structures and relocation of vertical load carrying elements.											■				■		
Portola Valley Town Center. Design of five new one story, wood-framed buildings with wood shear walls and concrete spread footings: a Town Hall, Community Hall, Library, Maintenance Building, and Restroom Building.												■					
Los Medanos Community Hospital - Medical Office Building. Structural design of a two story, steel framed, 30,000 sq. ft. medical office building in Pittsburg, CA.												■					
City of Belmont - Recreation Facility. Structural design of a two story, concrete block recreation facility and two concession/restroom buildings for new softball fields.											■						
Bond Oil - Platform Harriet. Structural design for elements of an 8-leg platform in 75 feet of water. Included the design of mud mats, jacket lifting padeyes, well head fender, appurtenance supports, conductors, and sump deck.									■	■							
Arco - Cherry Point Calciner. Structural design for various elements of this expansion project. The project included an 80-foot-diameter reinforced concrete structure to support a rotary hearth furnace and a 12,000 sq. ft., 100 foot tall, steel building to house the furnace.									■	■							
Los Positas Overcrossing. Inspection services for the construction of a two-lane bridge over Interstate 680 in Pleasanton, CA													■	■			
Sunol Grade Vehicle Inspection Station. Inspection services for the construction of an inspection station in Sunol, CA.													■	■			
San Francisco Friends School – Seismic Upgrade Design. Seismic upgrade and retrofit of this existing 85,000 sq. ft., three story timber building with new steel concentrically braced frames, strengthened diaphragms, new concrete mat foundation, and new steel truss roof structure over the gymnasium and theatre.												■			■		

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	Water Treatment	**Wastewater Treatment**	**Reservoir/Storage**	**Pump Station**	**Storm Water**	**Chemical Storage**	**Groundwater Wells**	**Water Transmission**	**Solid Waste**	**Industrial**	**Commercial**	**Office Building**	**Transportation**	**Svcs During Construction**	**Seismic Upgrades/ Eval**	**Landslide Mitigation**	**Power Generation**
Berkeley Community College - Building. Structural design of a new six story, 165,000 sq. ft. building. The structure is steel framed with concrete filled metal deck at the floors, concrete shear walls, and a drilled concrete pier foundation. A 60 x 80 ft. elliptical skylight supported on steel tension rod trusses provides cover for the central atrium.												■					
Dominican University - Science and Technology Center. Structural design of a new 35,000 sq. ft., two-story building with an L-shaped configuration. The structure is steel framed with concrete filled metal deck and steel concentrically-braced frames.												■					
California Maritime Academy - Simulation Center. Structural design of a new two story, steel-framed building with steel, concentrically-braced frames and drilled concrete piers.												■					
Olympic City Club – Structural Analysis. Structural analysis for the retrofit and seismic upgrade of this existing ten story, concrete building in San Francisco, CA															■		
Palo Alto Regional Water Quality Control Plant. Design of chemical containment areas for sodium hypochlorite and sodium bisulfite tanks.							■										
Yuba City - Solids Thickening Improvements. Provided structural design assistance for installation of new waste activated sludge thickeners on the second floor of an existing dewatering building.		■															
Yountville Veterans Home - Title 22 Upgrades and Recycled Water Expansion Project. Design of a partially buried 24 x 50 ft. chlorine contact structure of cast-in-place concrete with redwood baffle walls.		■															
City of Petaluma - C Street Pump Station. Structural analysis of pump station design.			■														
Monterey Water and Sanitation District - Analysis of Reservoir Roof Failure. Analysis of a prestressed concrete tank and development of recommendations.			■														
Monte Vista Water District – Well 32 and 33. Provided engineering for the design of a concrete masonry block pump station and a concrete slab on grade. The design for the building was required to meet strict aesthetic requirements for a residential area.				■			■										
Sausalito Marin City Sanitary District – Wet Weather Storage Facility. Feasibility-level design for a 4.5 MG wet weather storage tank to be sited within Young's Bay Mud in the Marina District in Sausalito, CA.			■		■												
Monterey Water and Sanitation District - Analysis of Reservoir Roof Failure. Analysis of a prestressed concrete tank and development of recommendations.			■														

TJCAA Experience Bank - ICE

TJCAA Instrumentation, Control, and Electrical Experience Bank								
Project Description	**Service Areas**							
	Facility Electrical & Industrial Apps	**Medium & Low Voltage Distribution**	**System Modeling, Analysis, & Utility Coordination**	**Control System Master Planning**	**Water & Wastewater Instrumentation & Control System Designs**	**Remote Telemetry & SCADA**	**Standby & Emergency Power Facilities**	**Project Management & Alternative Delivery Methods**
City of Santa Cruz - Graham Hill WTP Electrical Improvements Project. Project management and electrical design for renovation, expansion and improvements to the electrical distribution system at the City's main Graham Hill WTP.	■	■	■		■	■	■	■
Napa Sanitation District - Recycled Water Pipeline and Pump Station Design. Design for service and power distribution equipment, pump station motors and motor controls, and electrical building auxiliary electrical and lighting needs.	■	■			■	■		
Redwood City Glenwood Pump Station Improvements Project. Performed design of electrical upgrades for an existing water distribution pump station.	■				■		■	
CCWD - SCADA Telemetry Improvements Project. Prepared comprehensive predesign analyses and report for development of upgrade scheme for SCADA and telemetry system.				■		■	■	■
Central Contra Costa Sanitary District - Arc Flash Labeling Implementation Analysis and Reveiw. Performed review and analysis of arc flash hazards at the District's Wastewater Treatment Plant.	■	■	■					■
Wochholz Wastewater Treatment Plant - Improved Effluent Salinity Project. Designed electrical and structural elements for the addition of a new reverse osmosis (RO) Train and ancillary equipment including chemical systems as part of the process to reduce salinity levels in the effluent water	■	■	■		■			
MCWD – SCADA Consulting Services. Review of existing system deficiencies; development of new RTU and radio standard hardware specifications; development of standard programming, submittal, and well control descriptions; and bid documents.				■	■	■		■
CVSD – Pump Station 5 Control Rehabilitation. Performed field investigations and emergency design for replacement of motor controls at a small sewage pump station.	■	■			■			■

TJCAA Instrumentation, Control, and Electrical Experience Bank								
Project Description	**Service Areas**							
	Facility Electrical & Industrial Apps	**Medium & Low Voltage Distribution**	**System Modeling, Analysis, & Utility Coordination**	**Control System Master Planning**	**Water & Wastewater Instrumentation & Control System Designs**	**Remote Telemetry & SCADA**	**Standby & Emergency Power Facilities**	**Project Management & Alternative Delivery Methods**
Cucamonga Valley Water District - 1630 East Recycled Water Pump Station. Pump station with sizes ranging from 100 hp to 400 hp for delivering reclaimed water to the Inland Empire Utilities Agency recharge basin. Includes design of new pump station and integration of controls into CVWD and IEUA's existing SCADA systems.	■	■	■		■	■		■
Santa Clara Valley Water District - Pacheco Pump Station Adjustable Speed Drive Replacement. Designed replacement of twelve existing adjustable speed drives with newer technology drives, to operate existing 2,000 hp medium voltage wound rotor motors. Project work also included a SCADA system upgrade.	■	■			■	■		
City of Malibu - Malibu Legacy Park Project. Electrical design services for a multi-benefit facility providing stormwater management, water quality improvement, riparian habitat restoration, education, and open space for recreation. Electrical distribution system including a 480 V distribution panel with mini load centers throughout the park.	■	■	■					
Dublin San Ramon Services District - Zone 2 and 3 Pump Station Renovations. Design and construction services for electrical and mechanical renovations at four drinking water distribution pump stations. Included field inspections, conceptual approaches, use of reduced voltage starters for hydraulic surge control, replacement of all electrical equipment, and interfacing to existing SCADA.	■	■	■		■	■		■
City of Calistoga - Kimball WTP Improvements. Developed detailed electrical design documents for pressure filter based treatment facility for the City's main water treatment plant. Work included expansion of existing motor control systems, integration to the existing control system, and addition of multiple water quality monitoring instrumentation onto a centralized water quality monitoring panel.	■	■			■			
Inland Empire Utilities Agency - Phase 2 Chino Basin Facilities Improvement Project. Predesign and design related to the improvement at several groundwater replenishment basins and water supply turnouts, conforming to MWD technical requirements and standards.	■	■	■			■		
Metropolitan Water District - Diemer Water Treatment Plan Electrical Power and Reliability Improvements, Preliminary Design. Prepared recommendations for system improvements and upgrades to the original, 40 year old electrical system elements.	■	■	■				■	

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Cucamonga Valley Water District - Wells Number 43 and 46. Provided electrical and instrumentation design for two well pump stations.	■	■	■		■	■	■	■
Sapphire Energy - Biofuel Plant Review. Value engineering review of instrumentation, control, and electrical elements for a biofuel generation plant.	■							
Inland Empire Utilities Agency - 1630 East Recycled Water Pipeline Segment A Project. Design services for power, instrumentation, and SCADA work at the San Sevaine and Victoria Basin Turnouts.		■	■			■		
Orange County Water District - Groundwater Replenishment System Initial Expansion. Engineering Support for Control Systems	■							
Dublin San Ramon Services District - Cogeneration Electrical Improvements Project. Design services for a WWTP expansion including the electrical distribution system and cogeneration facility. Included adding a third cogeneration unit, for a total internal generation capacity of over 2 MW. The project also included relocation of the 21 kV main service.	■	■	■				■	■
Cucamonga Valley Water District - Booster Stations 1C and 2C. Design of and construction services for two large booster pump stations. Integration of existing facilities, including two large (600 and 700 hp) well pumps and coordination with Southern California Edison for new service at 1C and modifications to existing service at 2C.	■	■			■	■	■	
Contra Costa Water District - Bisso O&M/Administration Buildings Emergency Generator Project. Design of a standby generator retrofit.	■	■					■	■
Orange County Water District - Groundwater Replenishment System Design. Task leader for Instrumentation & Control (I&C) and Electrical disciplines for ultimate 130 mgd water reclamation project.	■	■	■	■	■	■		■
City of Mountain View - Crittenden (stormwater) Pump Station, Sewage Pump Station, and Whisman (drinking water) Pump Station. Electrical and instrumentation design.	■	■	■		■	■	■	
City of Folsom - Folsom WTP Expansion. Electrical design of multiple phases of expansion for the existing WTP.	■	■		■	■	■	■	■
United Water of Idaho - Columbia WTP. Design/build electrical and I&C design of ultrafiltration membrane treatment process.	■	■	■		■	■		■

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Contra Costa Water District - Treated Water Generators and Seismic Valves Project. Designed addition of engine generators and seismic shutoff valves at treated water pump stations and reservoirs.	■	■			■	■	■	■
Alameda County Water District - Brackish Water Treatment Facility. Designed electrical systems for a major new reverse osmosis desalination project.	■	■	■		■		■	
City of Santa Fe, NM - Transfer Station. Electrical facility design for new solid waste transfer station.	■	■	■					
Metropolitan Water District - Skinner Oxidation Retrofit Program. Discipline task leader for ICE design elements on the extensive retrofit to MWD's 630-mgd Skinner Water Treatment Plant (WTP).	■	■	■		■		■	
City of Salem, Oregon - River Road Wet Weather Treatment Facility. Electrical and I&C design for new high rate clarification and ultraviolet disinfection processes.	■	■	■		■	■	■	■
Contra Costa Water District - Bollman WTP Surface Water Quality (SWQ) Project. Plant upgrade to the 75 mgd Ralph D. Bollman surface water treatment plant.	■	■	■		■	■	■	
Contra Costa Water District - Bollman Emergency Generator Design/Build Project and 5 kV Master Plan. Design/build contract to install two new 2 MW trailer mounted engine generator sets.	■	■	■			■	■	■
Contra Costa Water District – 5 kV Electrical System Upgrade Phases 1 and 2. Bollman plant 5 kV distribution renovation project.	■	■	■			■	■	■
Seattle Public Utilities, Tolt Water Treatment Plant. Design/build of a grassroots 120-mgd treatment plant.	■	■	■	■	■	■	■	
Sultanate of Oman - Salalah Wastewater Treatment Plant (WWTP). Lead electrical design for a new WWTP.	■	■	■				■	
City of San Buenaventura WWRF - Control System Master Plan. Control system master plan consistent with the plant's existing system and long-term goals.				■	■	■		

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National Park Service - Yosemite National Park Electrical Distribution Upgrade. Rehabilitation of the electrical distribution system for Yosemite National Park.	■	■	■				■	■
East Bay Municipal Utilities District - Walnut Creek WTP Upgrades. Detailed electrical design services for major upgrades and capacity expansion.	■	■	■				■	
City San Buenaventura - Wastewater Reclamation Facility (WWRF) Upgrades Project. Upgrades at the reclamation facility.	■	■	■		■	■	■	
Department of Defense - March Air Force Base Electrical Distribution Upgrades. Rehabilitation and reconfiguration of the Base's overhead 12 kV electrical system under a design/build structure.	■	■						■
City of Santa Cruz - Graham Hill WTP Expansion Power Study. Development of planning level report, including power analyses for process improvements at the facility.	■	■	■				■	
Coastside Water District - Electrical System Study. Conceptual level power study and analysis for supporting planned process improvements.	■	■	■				■	
Metropolitan Water District - Diemer WTP Electrical Reliability Study. System analysis and report to evaluate the electrical reliability of the existing electrical system.	■	■	■				■	■
City of Folsom - WTP Control System Upgrade Design/Build. Control system upgrade performed under a design/build agreement.				■	■	■		■
Mercer Island, Washington – Telemetry Strategic Plan. Telemetry system strategic plan for the City's water and wastewater utilities.				■	■	■		
City of San Mateo - Wastewater Plant Supervisory Control and Data Acquisition (SCADA) System Conceptual Master Plan. Master Plan providing a blueprint for development and phased implementation of in-plant SCADA.				■	■	■		■
City of San Bernardino - Vulnerability Assessment. Security vulnerability assesment for the City's SCADA and telemetry system.				■	■	■		■
Santa Ana Watershed Project Authority - Telemetry Master Plan. Site inventories, technology review, and needs assessments.				■	■	■		■
Delta Diablo Sanitation District - Discovery Bay Telemetry System. Radio based telemetry system included design, replacement of RTUs, installation of central computers, system programming, and integration.				■	■	■		■

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Project Description	**Service Areas**							
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City of San Diego - Miramar WTP Expansion. I&C Task leader for the plant expansion, with associated instrumentation and distributed control PLC configured in a redundant, hot-standby arrangement.				■	■	■		■
City of Glendale - Remediation Project. Design and construction of electrical and I&C project elements, including remote telemetry to off-site wells, interlocks to central treatment facility, programmable logic-based controls and instrumentation for liquid and vapor stripping technologies.	■	■		■	■	■		■
City of San Francisco - WTP Design/Build Control System Upgrade. Major control system upgrades at the Harry Tracy WTP and Sunol WTP, which supply drinking water to the City of San Francisco. Project included new PLCs, computer workstations, and networking.				■	■	■		■
City of Santa Cruz - Graham Hill Water Treatment Plant Control System Upgrade. Design/build upgrade, including vendor selection, system design, panel fabrication, coordination of subcontractors, installation, startup, testing, training, and followup/warranty tasks.				■	■	■		■
San Jose Water Company - Montevina WTP, Electrical Upgrades. Installation of upgraded PLC system configured in a remote input/output architecture to minimize new wiring complications.	■	■	■	■	■	■	■	■
City of Livermore - Altamont Pump Station and Reservoir Improvements. Electrical and I&C design for rehabilitation of existing pump station to increase capacity and replace aging equipment.	■	■			■	■	■	
City of Mountain View - Turnouts Controls Design/Build. Project management for design/build project that included controls and SCADA interfaces for water purveyors' turnouts.				■	■	■		■
City of Mountain View - Whisman Pump Station. Project management for the electrical design for rehabilitation of the City's main drinking water pump station. The facility was sited at City's corporation yard and required installation of a large standby generator for both pumping and corporation yard facility loads.	■	■	■	■	■	■	■	■
Diablo Water District - Generator Replacement Project. Project manager for the electrical design for procurement and installation of new on-site diesel engine generator for the District's central facility and Corporation yard.	■	■	■				■	■

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Las Virgenes Municipal Water District - Tapia Water Reclamation Facility, Headworks Improvements Project. Prepared design/build bidding documents for upgrades to the Tapia WRF Headworks.	■	■			■			■
City of Folsom - WTP Control System Upgrade. Control system upgrade executed under a design/build approach, including design of control system architecture and interface to remote telemetry, fabrication/installation of PLC backpanels, testing, training, and start-up.				■	■	■		■
Contra Costa Water District - Randall-Bold WTP Design/Build DCS Upgrade. Project Manager for design/build replacement of the plant's DCS. Developed bid/proposal documents for the designer/builder, defined proposal evaluation method, facilitated project interviews, and participated in the selection of the design/build firm.				■	■	■		■
South Bayside System Authority - Solids Handling Control Room. Design of electrical supply for new scrubber, heat pump, and other ventilation equipment associated with odor control systems at the solids handling building.					■			
South Bayside System Authority - Waste Gas Burner System Rehabilitation. Review and development of new waste gas burner ignition systems.					■	■		