

**Frank J. Rollo, PE, GE**

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**Professional Experience**

2008 – Current  
Rollo & Ridley, Inc.  
1991-2008  
Treadwell & Rollo, Inc.  
1988-1991  
Dames & Moore

**Education**

M.S., Civil Engineering,  
University of California,  
Berkeley, 1988  
  
B.S., Civil Engineering,  
Purdue University, West  
Lafayette, Indiana, 1987

**Professional Registrations**

Civil Engineer in California,  
1992  
  
Geotechnical Engineer in  
California, 1997

**Affiliations/Honors**

American Society of Civil  
Engineers, 1986-present  
  
Chi Epsilon, 1986  
  
Structural Engineers  
Association of Northern  
California,  
1993-present

Mr. Rollo performs geotechnical and environmental investigations, litigation consultation, and construction oversight for multimillion-dollar projects. His experience includes project management and supervision during investigations for commercial, retail, and residential developments and offshore structures, as well as emergency response for public agencies. Mr. Rollo has managed the seismic upgrades of mid- and low-rise buildings, hospital rebuilds and expansions, and educational facilities, and the reconstruction of structures damaged during natural and man-induced disasters in Central California, including the sewer failure at West Clay Park/Seacliff District, San Francisco rockfalls, the Loma Prieta earthquake, and the Oakland Hills fire. His experience includes:

**Schools of the Sacred Heart**

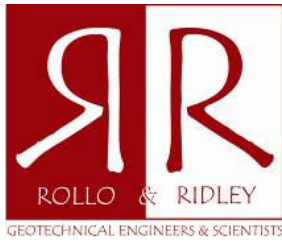
Geotechnical project director for the renovation and seismic strengthening of the Grant Building and Stuart Hall (both unreinforced masonry) at the Schools of the Sacred Heart in San Francisco, California. Project manager for the geotechnical investigation for the gymnasium located directly behind the historic Flood Mansion. Services included providing conclusions and recommendations regarding geologic and seismic hazards, bearing capacity of existing footings, and design criteria for new foundations.

Project manager and senior engineer for the geotechnical investigation for the proposed boys' high school at Pine and Octavia Streets. The site will be developed to include a below-grade gymnasium and several 3-story buildings. Provided recommendations for foundation design, basement walls, and shoring and underpinning for the new structures, and seismic strengthening design of the existing structures.

Project manager and senior engineer for a new program building at the Broadway campus. The project included excavating approximately 60 feet below the existing grade and constructing a below-grade theater. Services included providing conclusions and recommendations for foundation design, basement walls, and shoring and underpinning behind the historic Grant Building and adjacent to the Flood Mansion.

**Pier 1**

Project manager and senior engineer for the geotechnical investigation for the Pier 1 project in San Francisco, California. The project included a due diligence investigation, review of three pile load tests, final design services, and services during construction. Pier 1 consists of a bulkhead building and shed supported by a concrete platform founded on concrete-jacketed timber piles (circa 1940). Plans included seismically strengthening and remodeling the pier to accommodate retail and Class A office space. New 20-inch, hollow-steel pipe piles support a public access walkway near the pier, and 48-inch, hollow-steel pipe piles around the walkway will resist the effects of ground shaking. The project was approved by the San Francisco Bay Conservation and Development Commission and their subcommittee ECRB. Construction was completed in 2001.



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### **Piers 1½, 3 and 5**

Mr. Rollo was associate engineer and project manager for the conversion of the existing piers to office and retail space. The circa-1910 structures underwent a full seismic strengthening including the addition of new piles. Mr. Rollo was in charge of overseeing the extensive field work (including pile testing, CPTs and exploratory drilling), engineering analysis, and preparation of a detailed geotechnical report. He presented geotechnical design criteria to the Bay Conservation and Development Commission (BCDC) which were approved. During construction (pile installation), Mr. Rollo provided day-to-day oversight and consultation. Construction was completed in 2006.

### **The Olympic Club, Sutter Street Facility and Post Street Clubhouse Renovation**

Principal-in-Charge during the geotechnical investigation, design development and construction phases. The project included the demolition and removal of the existing two-story parking structure (Olympic Garage) and the construction of a new seven story, steel-framed building above four below-grade concrete levels. The building was interconnected with the rear of the existing Post Street Clubhouse. An excavation of approximately 61 feet below street level grade was required to construct the basements. Shoring and underpinning were required to maintain lateral and vertical support of adjacent structures and improvements. The shoring system included approximately 100 hand-mined underpinning piers, slant-drilled underpinning piles, soldier beams, and several levels of tiebacks.

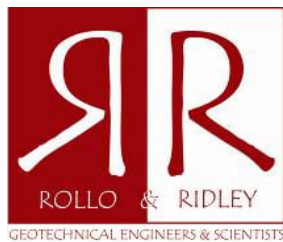
In addition, Mr. Rollo provided geotechnical services during the renovation of the existing historic nine-story Post Street building. Foundation improvements included a new mat foundation to support a central core shear wall and a micro-pile supported shear wall. Shoring and underpinning was installed to allow access to the existing foundations, which were constructed in the 1910s, up to 20 feet below the existing lowest basement level. In 2007, Mr. Rollo provided expert testimony during trial, defending the Olympic Club and Plant Construction Company.

### **The Exploratorium, Pier 17 & 19**

Principal-in-Charge of the geotechnical investigation for the conversion of the circa-1930 piers to the new home of the Exploratorium. The detailed geotechnical investigation included vertical and lateral pile load tests, Core Penetration Tests (CPTs), and borings. A summary of our findings, engineering analysis and recommendations for the seismic upgrade were presented in a written report. Treadwell & Rollo prepared a site-specific response spectra and presented detailed seismic design criteria.

### **Single Family Residences**

Principal-in-charge of geotechnical investigations for single family residences in San Francisco, Marin, Sonoma, Napa, San Mateo and Santa Clara Counties. Detailed studies were performed for families interested in upgrading or replacing their family estates. Mr. Rollo provided hands on interaction with the owners and members of the design team during design and construction of these multi-million dollar projects.



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### **San Francisco Schools**

Project manager and geotechnical engineer of record working with design teams on the design and construction of schools in San Francisco, California. The projects involved building additions, seismic strengthening, and remodeling. Completed projects include a new gymnasium, Siboni Art and science building at the Schools of the Sacred Heart, a new gymnasium cafeteria at the Sacred Heart Cathedral High School, a new classroom building at San Francisco Day School, a new classroom and library building at Katherine Delmar Burke School, a new access road and library building at Lick Wilmerding High School, and new additions to the Gleeson Library, the Kendrick Law Library, Lone Mountain Dormitory, McClaren School of Business, Campion Hall and Harney Science at the University of San Francisco.

### **Pier 43**

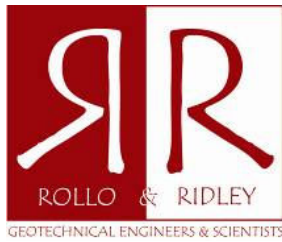
Project manager and senior engineer for the emergency repair of the bulkhead structure that sustained damage in a June 1998 fire. Pier 43 is west of Pier 39 and is composed of two interconnected structures: the Archouse and apron, and the pier. Plans are to install new piles Bayward of the Archouse that will allow the contractor to transfer load from the bulkhead building to the pier deck; once the piles are driven, repairs to the Archouse and apron can be made. Reviewed available subsurface information for the site vicinity, reviewed the as-built drawings for Pier 43, and developed preliminary compression capacity for new timber piles.

### **Breakwater Structure/Access Pier**

Project manager for the geotechnical investigation for design and construction of a new breakwater structure/access pier south of the Ferry Building in San Francisco, California. Plans called for a 15-foot-wide, 1,000-foot-long, straight concrete structure supported on piles. The structure will begin at the Embarcadero just south of the Agricultural Building. Services included reviewing data from previous geotechnical investigations, exploring subsurface conditions by drilling test borings from a drill ship, developing conclusions and recommendations regarding soil conditions and appropriate pile types, and providing design criteria for the recommended piles, including uplift and compression capacities, foundation settlement, and pile installation. During construction, provided oversight and addressed geotechnical issues as needed. The breakwater was completed in 2005.

### **Ferry Building Promenade**

Project manager for the geotechnical investigation for the Ferry Terminal Project – Ferry Building Promenade in San Francisco, California. The project consisted of removing the existing pier, constructing new pile-supported walkways around the Ferry Building, and constructing the Ferry berth facilities. Worked closely with the Port Engineer and provides geotechnical design recommendations for the installation of new prestressed, precast concrete piles.



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### **San Francisco Ferry Building**

Assistant project manager on a seismic risk analysis for the renovation and seismic upgrade of a 3-story, steel-framed office building. The work included recommendations for new foundations and construction observation.

### **China Basin Wharf and Building**

Project manager for the geotechnical and environmental services for this project located on the China Basin Channel in San Francisco, California. The geotechnical work included providing recommendations for the design of a pile-supported, 850-foot-long by 40-foot-wide new wharf. Computer analysis was used to design piles that could support the wharf vertically and laterally in the event of an earthquake. Also provided geotechnical engineering input for foundation repair of the existing building. The building is supported on timber piles, approximately 40 percent of which had been damaged by marine organisms. Some building columns had experienced settlement in excess of 2 inches and were in need of repair. Developed a repair scheme that consisted of removing damaged pile sections, preloading a select number of piles by jacking against the pile cap (using screw jacks that were left in place), and placing reinforced concrete between the pile and pile caps.

### **Illinois Street Bridge**

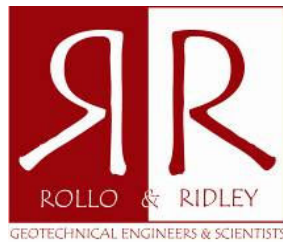
Geotechnical engineer in charge of the investigation performed for a new intermodal bridge to cross the Islais Creek Channel in San Francisco. The proposed structure is roughly 480 feet long with pier bents every 65 to 70 feet. Fill was placed at each abutment to construct the approach ramps. Detailed onshore and offshore field investigation and laboratory studies were performed. Engineering analysis concluded driven piles are the most suited foundation system. Working with the Port engineers, produced a detailed Design/Build RFP for bridge final design and construction. The bridge was completed in 2006 and was awarded an Engineering Excellence award by SEAOC in 2007.

### **Carquinez Bridge Exploration for Caltrans**

Senior engineer and project manager for geological and geotechnical services for the new Carquinez suspension bridge constructed west of the existing southbound bridge in Crockett, California. The project called for pilings to be used as a temporary trestle, geotechnical test borings for a supplemental investigation, and pier ruins and pilings to be removed from an existing pier. The project required logging test borings from the barge in up to 80 feet of water, performing *in-situ* testing, including E-logging S- and P-wave velocities and acoustic imaging, working with Caltrans to select samples of rock for laboratory testing, and preparing a log of test boring data sheets and a report per Caltrans standards.

### **El Camino Del Mar, Sewer and Slope Reconstruction**

Project manager responsible for providing the City, National Park Service, and adjacent homeowners in San Francisco, California with an acceptable means of shoring to retrieve debris and reconstruct the slopes following the December 1995 sewer failure. Recommendations were provided for a soldier-beam-and-lagging



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with tieback shoring system, hand-excavated underpinning piers, and rough grading. Detailed slope stability analysis was performed to ensure both short-term and long-term stability of the repaired slope and adjacent Lobos Creek.

Construction was on an accelerated schedule with crews working extended hours. Provided both on-site and office supervision of full-time staff during the geotechnical aspects of the repair.

### **Alta Street Reconstruction**

Project engineer for the repair and replacement of a retaining wall and street damaged in a rockslide in San Francisco, California. Provided recommendations for temporary shoring for emergency stabilization and recommendations for the repair design, and observed the installation of the drilled, cast-in-place piers, tiebacks, and deep caissons required to build a new street and retaining wall.

### **Telegraph Hill Rockfall Mitigation**

Provided expert testimony during the mediation and settlement for adjacent property owners during the case. Assisted in the design to stabilize the cliff immediately adjacent to Kearny and Montgomery Streets in San Francisco, California. The design called for scaling the rock face, installing rock bolts and a gabion mesh, and constructing a retaining wall near the base.

### **Pier 1/2**

Project manager for the geotechnical investigation for the Pier 1/2 project in San Francisco, California. The project consisted of removing the existing pier, constructing new pile-supported walkways around the Ferry Building, and constructing the Ferry berth facilities. Provided geotechnical design recommendations for the installation of new prestressed, precast concrete piles. Our analysis included axial compression, uplift and lateral pile capacities. During construction, consulted with the Port.

### **Army and Noe Streets Rockfall**

Provided emergency response and consultation for homeowners in San Francisco, California when heavy rainfall and adverse bedrock bedding caused large blocks of rock to fall. The permanent repair included large-scale rock removal and rock bolting of the face.

### **Gateway Valley**

Project manager for geotechnical and environmental investigations and elements of an environmental impact report prepared in connection with the development of 1,000 acres east of the Oakland Hills in California. The development includes an 18-hole golf course, driving range, hotel, conference center access road, and several hundred single- and multi-family residential structures. Due to previous landslide activity on the property, an extensive field investigation was performed that included conventional small-diameter borings, test pits, cone penetrometer tests, and downhole logging of large-diameter bucket-auger shafts. Developed recommendations for buttress slopes, drainage, fill placement and compaction, and foundation types. Provided specifications for monitoring fill and cut slopes, including extensometer and inclinometer installations and data acquisition.



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Within the 1,000 acres was an abandoned quarry designated for residential and light industrial use. Preliminary recommendations for safer slopes, undocumented fill, and setbacks were provided.

#### **San Francisco General Hospital (SFGH)**

Mr. Rollo was the project manager for the design of a new acute-care hospital on the campus of the SFGH. The proposed hospital will have an approximate plan area of 70,000 square feet at basement level; above grade, the building will be approximately 60,000 square feet in area and about 90 feet high. Plans call for a 6-story building plus a penthouse and two basement levels.

The hospital will incorporate a base isolation system at the foundation level. A tunnel will connect an existing basement to the upper basement level of new structure. T&R recommended the building be supported on a mat foundation, which will support the static structural loads, provide a platform for the base isolation system that will be designed to reduce seismically-induced forces in the building, and reduce the uplift pressures associated with the differential groundwater levels.

#### **UCSF Mount Zion Medical Center**

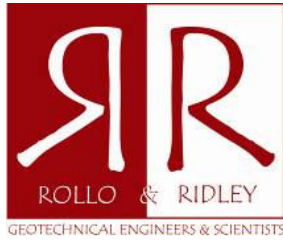
Project manager for a master plan study for the structures at the Mount Zion Medical Center campus for University of California San Francisco (UCSF) in San Francisco, California. Treadwell & Rollo provided the preliminary geotechnical investigation for building scenarios considered under the Mount Zion campus master plan. The master plan envisioned the renovation and expansion of existing buildings, construction of new buildings, and open spaces. In addition to the master plan study, Treadwell & Rollo performed site-specific investigations for the Cancer Research Center, the first new building constructed under the master plan (2002). During construction we provided construction observation and testing services as needed. Recent studies included geologic and seismic hazard evaluations of Buildings B and D, including a ground-response analysis.

#### **UCSF Parnassus Campus Ambulatory Care Center, MRI Facility**

Project manager for the geotechnical engineering services for the MRI Facility in the Ambulatory Care Center (ACC), Level C, on the University of California at San Francisco Parnassus campus. The plans included constructing two MRI units approximately three feet below the existing floor slab grade. Due to the nearby MUNI N-Judah line and its associated vibrations and the sensitivity of the MRI units, over-excavation and placement of lean concrete was chosen as the appropriate alternative. Our engineers were on site full-time during overexcavation to verify and approve the subgrade for lean concrete placement.

#### **555 4<sup>th</sup> Street, San Francisco, California**

Principal-in-Charge of the geotechnical investigation and construction observation services for this 9-story, 480,000-square-foot, poured-in-place concrete, 300-unit condominium project. The structure is supported by a relatively new pile type called Torque-Down piles, which are closed-end steel pipe piles drilled to depth. Consulted on the pile load testing program



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consisted of 7 pile load tests to determine tension and compression capacities and pile lengths. The end result saved the project approximately 40 percent in pile costs as compared with conventional pile types. A total of 789 piles were installed for this project with each having an allowable compression capacity of 400 kips. The project was completed in 2006.

#### **California Pacific Medical Center, California Campus**

Associate-in-Charge for the geotechnical investigation for several new structures considered for the California Campus of the California Pacific Medical Center (CPMC) in San Francisco, California. The site is an existing hospital and occupies several blocks. Current plans include constructing three new major structures for the site: a Medical Office and Hospital Ancillary building (West Cherry), an Acute Care Hospital, and a Women's and Children's Hospital. All buildings would have below-grade parking and would be connected by underground tunnels. Design and construction challenges would include excavating soil and bedrock to depths up to 60 feet below grade, underpinning several residences and an existing hospital building that border the proposed buildings, and designing structures to accommodate large amounts of hydrostatic head. Construction of tunnels would require excavations across existing streets.

#### **California Pacific Medical Center, Pacific Campus**

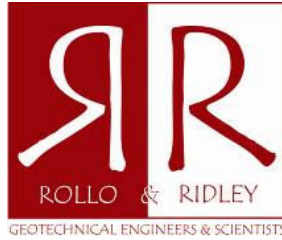
Associate-in-Charge for the geotechnical investigation for three new buildings considered for the Pacific Campus of the California Pacific Medical Center (CPMC) in San Francisco, California. Three new major structures are proposed for the site: an Ambulatory Care Building, a Medical Office Building, and a Research Building. All buildings would have below-grade parking. Our scope of services consisted of exploring the subsurface conditions at the site, performing laboratory tests and engineering analyses, and developing a draft report providing conclusions and recommendations regarding foundation types and design parameters, shoring, underpinning, and excavation difficulty. Seismic design was provided during preliminary design. We subsequently performed a geotechnical investigation for a below-grade linear accelerator at the campus and consulted on geotechnical issues during its construction.

#### **Veterans Home of California**

Project manager for the geologic and seismic evaluation of the Veterans Home in Yountville, California. The site supports administration buildings, Holderman Hospital, housing, workshops, recreational vehicle parks, playgrounds, and a cemetery. Performed geologic hazard evaluations for strong ground shaking, soil creep, erosion, and flooding. The geologic hazards evaluation and seismic risk analysis were published in a written report. Provided a detailed geotechnical investigation for the seismic strengthening of two wings of the hospital.

#### **Mission Housing Development Corporation**

Project manager for several environmental projects for the Mission Housing Development Corporation in San Francisco, California. Responsibilities included developing a detailed field investigation and laboratory testing program and recommending



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economical and practical solutions for the clean-up and development of the proposed sites.

### **EBMUD Plant Expansion**

Project manager and field engineer for a \$72 million plant expansion that included the construction of a 45-foot-deep, 20-acre-foot basin. Set up an extensive field monitoring program, which included pile driving (indicator piles, compression and tension load tests, and production pile driving), excavation monitoring (inclinometer and piezometer program), and on-site consulting. Assisted in the review of subcontractor's designs for installation of a mix-in-place soil-cement wall used for shoring; a mile of sheetpile and bracing schemes; 2,000 concrete piles driven with a 45-foot follower; and jet grouting for water cut-off.

### **Santa Cruz Area Seismic Design**

Reviewed and aided in the design for the rebuilding of approximately 100 homes destroyed during the 1989 Loma Prieta earthquake in California. Responsibilities included the review of proposed foundations and retaining structures (designed by other geotechnical engineers) for the City and County of Santa Cruz.

### **Caltrans Highway 1 Widening**

Managed the field investigation for the widening of Highway 1 near Castroville, California for Caltrans. The investigation included rotary-wash drilling and sampling, field-vane shear tests, and cone penetration and dilatometer penetration testing. Set up an extensive laboratory testing program. Prepared a materials report for Caltrans on the slope stability and bridge design phase.

### **199 Fremont Street**

Project manager and senior engineer for geotechnical investigation for a 23-story, steel-framed office building above three levels of underground parking with overall plan dimensions of 133 by 179 feet. The project included a 46-foot excavation and a mat foundation. During final design, submittals relating to the soil-mix wall, internal bracing and excavation schemes, and dewatering were reviewed. Our services during construction included observing the installation of the soil-mix wall, excavation of the site, installation and testing of tiedown anchors, and approval of the mat subgrade.

### **Pacific Skies Estates**

Project manager for the geotechnical and geologic investigation for the restoration of 850 feet of the coastal bluff in Pacifica, California. Services included providing emergency response, developing recommendations for a permanent repair, and consulting with members of the Coastal Commission.