

ALAN “BOB” MUTCHNICK, PG, CEG
Director, Engineering Seismological Services
Associate Engineering Geologist



PROFESSION

Engineering Geologist

REGISTRATIONS

California - Professional Geologist

California - Certified Engineering Geologist

EDUCATION

B.S. in Geology, 1982, University of Tennessee

Post-Graduate Studies, 1987-1990, California State University at Los Angeles,

PROFESSIONAL EXPERIENCE

GMU Geotechnical, Inc.
(1986-Present)

Associate Engineering Geologist,
Director of Engineering Seismological Services, Rancho Santa Margarita, California

Western Laboratories
(1984-1986)

Soils Technician/Staff Geologist,
Gardena, California

PROFESSIONAL AFFILIATIONS

Association of Engineering Geologists

International Society of Explosives Engineers

South Coast Geologic Society

SUMMARY OF EXPERIENCE & QUALIFICATIONS

Mr. Mutchnick has over 28 years of experience as an engineering geologist and blasting and vibration consultant. He has served as the project manager on numerous geologic, geotechnical and blasting and vibration projects related to pipelines, reservoirs, tunnels, bridges, dams, water expansion facilities, parks, groundwater studies, mines and quarries, residential planned communities, custom lots, and commercial projects. Selected projects representative of Mr. Mutchnick's experience are subdivided into the following categories:

- Engineering Seismological Projects
 - Blast Consulting
 - Vibration Consulting and Monitoring
- Engineering Geologic Projects
 - Mines and Quarries
 - Evaluation of Geologic Hazards
- Geotechnical Projects
 - Master-Planned Communities
 - Residential Custom Lots
 - Major Roadways
 - Bridges
 - Water Resources Projects
 - Commercial/Industrial Projects
 - Groundwater Studies
 - Public Works and Utility Projects
 - Seismic Refraction and Rippability Projects
- Expert Witness

ENGINEERING SEISMOLOGICAL PROJECTS

BLAST CONSULTING:

- All American Asphalt – Corona Quarry - Corona, CA: Blast consultant services ranging from assisting in developing blast plans to providing signature blast hole analysis for on-going blast operations at the quarry.
- Folsom Dam Phase I Safety of Dams Modification Project – Folsom, CA: Blast consultant for Foxfire Constructors, Inc. (sub-contractor to Kiewit Pacific Co.). Blast consulting services during the development of the blasting plan, reviewed blasting plan, and provided blast vibration monitoring services.
- Yuba County Water Agency, Narrows II Powerhouse Bypass Project – Yuba County, CA: Blast and vibration consultant for Mitchell Engineering Company. Project consisted of blasting hard rock during construction of a bypass tunnel. Provided consulting services during the design of the tunnel blast plans. Reviewed all blasting plans and blast operations including vibration monitoring of water district improvements during blasting.
- San Diego County Water Authority, Lake Hodges Pump House Shaft Excavation – Escondido, CA: Blast and vibration consultant for Mine Development and Engineering Corporation. Reviewed blasting plans, performed periodic blast vibration monitoring, and reviewed contractor's blast vibration records.
- Highway 18/38 at Big Bear Dam Arch Bridge - San Bernardino County, CA: Blast and vibration consultant for Drill Tech Drilling and Shoring, Inc. Project consisted of blasting hard rock during construction of the arch bridge foundation. Provided consulting services during the design of the foundation blast plans. Reviewed all blasting plans and blast operations including vibration monitoring of the existing dam during blasting.
- San Diego County Water Authority's 5EII Pipeline Project - San Diego County, CA: Blasting and vibration consultant for Mine Development and Engineering Corporation. Reviewed blasting plans and performed blast vibration monitoring. Also performed pre-blast surveys.
- San Bernardino Tunnel Intake Reconstruction - Lake Silverwood, CA: Blasting and vibration consultant for Shank/Balfour Beatty. Reviewed blasting plans, performed blast vibration monitoring, and attended meetings with the California Department of Water Resources technical staff.
- San Diego County Water Authority's Specification No. 457 Project - San Diego County, CA: Blasting and vibration consultant for Roy E. Ladd, Inc. Performed pre-blast surveys, prepared a site-specific blasting plan, performed blast vibration monitoring and reviewed daily blasting plans.

- Riverside County Segment, Inland Feeder Project - Riverside County, CA: Blasting consultant for Metropolitan Water District of California during the design phase of the Inland Feeder Project. Attended design meetings and provided blasting and vibration specifications for the project.
- Henry J. Mills Filtration Plant Expansion No. 2 - Riverside County, CA: Blasting and vibration consultant for Metropolitan Water District of California during expansion of the Henry J. Mills Filtration Plant. Assisted in preparing the project blasting specifications, reviewed contractor's blasting plans, performed pre-blast surveys at MWD improvements, and performed blast vibration monitoring.

VIBRATION CONSULTING:

- Main Street Bridge Expansion Project – Temecula, CA: Vibration consultant for City of Temecula. Performed vibration monitoring services during pile driving operations to construct the bridge foundation.
- San Diego Creek Channel Invert Repair Project – Irvine, CA: Vibration consultant for Shimmick Construction Company. Responsibilities included monitoring the driving of sheet pile along the channel sides to repair the channel invert.
- Hollyhills Storm Drain Project - Los Angeles, CA: Vibration consultant for Kiewit Pacific Company. Performed pre- and post-construction surveys of residential and commercial properties. Performed vibration monitoring during the driving of sheet piles. Attended homeowner's meetings to discuss the pre- and post-construction surveys and vibration monitoring program.
- Vibration consultant on numerous projects throughout Southern California for California Drilling & Blasting Company, Inc. Performed pre- and post-blast surveys, reviewed blasting plans, and performed blast vibration monitoring.
- Vibration consultant on several projects in Northern California for Foxfire Constructors, Inc. Performed pre- and post-blast surveys, reviewed blasting plans, and performed blast vibration monitoring.

ENGINEERING GEOLOGIC PROJECTS

MINES AND QUARRIES:

- Pebbly Beach Quarry Geologic Study – Catalina Island, CA: Providing on-going consultation and evaluation of geologic conditions for Connolly-Pacific Inc. pertaining to geologic materials, mining, and future blasting methods.
- All American Asphalt Mining Study - Corona, CA: Providing on-going consultation, mapping and evaluation of geologic conditions for All American Asphalt with respect to stability of proposed road and bench alignments.

- Mission Gorge Quarry Slope Stability Evaluation – San Diego, CA: Geologic mapping and structural geologic analysis of geologic conditions with respect to slope stability for Superior Ready Mix.
- Elephant Hill Quarry Slope Stability Evaluation – Pomona, CA: Provided geologic consultation, mapping and evaluation with respect to slope stability of proposed quarry slopes for Aman Environmental Construction.

EVALUATION OF GEOLOGIC HAZARDS:

- Pebbly Beach Quarry – Catalina Island, CA: Providing on-going consultation and geologic evaluation pertaining to rockfall potential for Connelly-Pacific, Inc.
- Folsom Dam Phase II Safety of Dams Modification Project – Folsom, CA: Provided consultation, mapping and evaluation of geologic conditions with respect to drilling and blasting operations for Foxfire Constructors.
- Geologic Evaluation of Pump House Shaft Excavation - San Diego County Water Authority, Lake Hodges, Escondido, CA: Geologic mapping and evaluation of exposed rock conditions following shaft excavation blasts to help identify causes related to block-type rock failures.
- Geologic Site Assessment Pertaining to Rock Fall - Silverado Canyon Road, County of Orange, CA: Geologic site assessment following a rock fall event within a slope area located above Silverado Canyon Road. Investigation included field mapping of rock areas where future rock fall events could originate from.
- Debris Flow Analysis, Ortega Gateway – Rancho Mission Viejo, CA: Calculations and analysis of debris flow hazards affecting residential development. Also assisted with design of detention facilities to mitigate debris flow hazard.
- Valencia Treatment Plant, Fault Study – Valencia CA: Seismic refraction method used to locate fault traces crossing the existing treatment facility.

GEOTECHNICAL PROJECTS

MASTER PLANNED COMMUNITIES:

- Rancho Santa Margarita, CA - Santa Margarita Company: Geotechnical investigation and mapping during grading for the planned community including roadways, lake, reservoirs, commercial, and residential development.

- Rancho Niguel, Laguna Niguel, CA - Buie Development Company: Geotechnical investigation and mapping during hillside grading project. Mitigated issues related to groundwater and landslides.
- Las Flores, Orange County, CA - RSM Management Company and Vintage Communities: Complete geologic services for residential hillside development including project management during grading.
- Ladera Ranch, Orange County, CA - DMB Ladera, LLC: Complete geologic and project management services for planned community including major hillside grading and landslide remediation.
- Coto de Caza, CA - Coto de Caza, Ltd. and Lennar Homes: Geotechnical investigation and mapping during hillside grading for several planning areas within the community involving groundwater and slope stability issues.
- Newport Coast, Newport Beach, Orange County, CA - Irvine Community Development Company: Geotechnical investigation, reporting, and project management for hillside grading projects within various planning areas. Geotechnical issues addressed landslides, hard rock materials and construction of MSE walls.
- Santaluz Planned Community, San Diego, CA – Taylor Woodrow Homes: Performed geotechnical investigation, design, on-site construction, project management and reporting for a master community consisting of production and custom home sites, infrastructure, a 250 acre private golf course and 11 acre village area nested among thousands of acres of open space. Geotechnical issues related to landslides and hard rock were addressed and mitigated.
- Ortega Gateway Planned Community, Rancho Mission Viejo, CA - Rancho Mission Viejo Company: Geotechnical investigation and reporting for master-planned community. Addressed numerous issues including large-scale ancient landslides, liquefaction hazards, time-delayed settlement, shallow groundwater, debris flow potential, aggregate mining, existing infrastructure, and scour protection for the adjacent San Juan Creek.
- Crystal Cove, Newport Beach, Orange County, CA – Irvine Development Company: Geotechnical investigation, reporting, and project management during hillside grading for planned community including the remediation of several large ancient landslide complexes.

RESIDENTIAL CUSTOM LOTS:

- Various Custom Lot Projects in Covenant Hills - Ladera Ranch, CA: Geotechnical investigation and reporting of grading and construction of on-site improvements; includes design and construction of basements and subterranean garages.

- Various Custom Lot Projects in Crystal Cove Development - Newport Beach, CA: Geotechnical investigation and reporting of grading and construction of on-site improvements; includes design and construction of basements and subterranean garages.
- Various Custom Lot Projects in Santaluz Planned Community – San Diego, CA: Geotechnical investigation and reporting of grading and construction of on-site improvements; includes design and construction of post-tension foundation systems, pool and retaining walls.
- Guitterez Residence, Avenida La Cresta - Riverside County, CA: Geotechnical investigation and reporting for grading and construction of a custom home on a 5-acre property. Improvements include the main residence, guest house, pool, etc.

MAJOR ROADWAYS:

- Crown Valley Parkway – Ladera Ranch, Orange County, CA: Geotechnical investigation and mapping during grading for arterial roadway between Antonio Parkway and Crown Valley Bridge.
- Antonio Parkway – Rancho Santa Margarita, Las Flores, and Ladera Ranch, Orange County, CA: Geotechnical investigation, mapping and project management during multiple phases of grading and construction of Antonio Parkway.
- La Pata Avenue Extension – County of Orange to City of San Clemente, CA: Geologic investigation and interpretation of geologic information during preliminary design phases.

BRIDGES:

- Crown Valley Bridge – Rancho Mission Viejo, Orange County, CA: Geotechnical observation of foundation construction, including excavation of large-diameter shafts for bent construction.
- Antonio Wildlife Crossing Bridge Phases I and II - Ladera Ranch, Orange County, CA: Geotechnical observation of foundation construction, including excavation of large-diameter shafts for bent construction.

WATER RESOURCES PROJECTS:

- San Juan Creek Revetment – Rancho Mission Viejo, Orange County, CA: Geotechnical investigation and studies to support design of proposed revetment (i.e., scour protection system) along San Juan Creek near Ortega Highway and Antonio Parkway. Studies included subsurface investigation, materials testing, revetment stability analyses, groundwater evaluation, and assistance with design of jet grouting and soil cement components of the revetment.

- Zone 1 Domestic and Zone A Recycled Reservoir Sites - Ladera Ranch, CA: Geotechnical services to support design and construction of reservoir sites within Covenant Hills Development of Ladera Ranch. Studies included geotechnical investigation, slope stability analysis, foundation design, settlement evaluation, pavement design and construction observation and testing during grading and construction of on-site improvements.
- Zone II Domestic and Zone D Recycled Reservoir Sites and Access Road - Ladera Ranch, CA: Geotechnical investigation for reservoir sites and access road within the Urban Activity Center area of Ladera Ranch. Studies included geotechnical investigation, slope stability analysis, foundation design, settlement, pavement design and construction observation and testing during grading and construction of on-site improvements.
- Zone II Domestic and Zone B Recycled Reservoirs Sites and Access Road – San Clemente, CA: Geotechnical investigation for reservoir sites and access road within the Talega Development of San Clemente. Studies included geotechnical investigation, slope stability analysis, foundation design, settlement, pavement design and construction observation and testing during grading and construction of on-site improvements.

COMMERCIAL/INDUSTRIAL:

- Holy Trinity Church - Ladera Ranch, CA: Project management for geotechnical design and construction phases of Holy Trinity Church.
- CR&R Expansion Project - Rancho Mission Viejo, CA: Geotechnical investigation and project management for the expansion of the CR&R site. Geotechnical studies addressed suitability of subsurface materials to improvements.

PARKS AND SPORTSPARKS:

- Avendale Village Club – Ladera Ranch, CA: Project Manager – Geotechnical design and construction for clubhouse, swimming pool, tennis courts, tot lots, asphalt drives and parking lots, hardscape, and associated improvements.
- Terra Grande Park Site – Talega, CA: Project Manager – Geotechnical design and construction for recreation building, ballfields, MSE walls, asphalt drives and parking lots, hardscape, and associated improvements.
- Cox Sportspark – Ladera Ranch, CA: Project Manager – Geotechnical design and construction for sportspark complex with ballfields, snack bar/restroom building, asphalt drives and parking lots, hardscape, and associated improvements.
- Canyon Club Recreation Site – Crystal Cove, CA: Project Manager – Geotechnical design and construction of a recreation complex, including a clubhouse, swimming pool, tennis and basketball courts, asphalt drives and parking lots, hardscape, and associated improvements.

- Reef Point Park Site – Crystal Cove, CA: Project Manager – Geotechnical design and construction for restroom building, basketball court, play areas, asphalt drives and parking lots, hardscape, and associated improvements.
- Central Park – Rancho Santa Margarita, CA: Project Manager – Geotechnical design and construction of park improvements including a restroom building, tennis and roller hockey courts, asphalt drives and parking lots, hardscape, and associated improvements.

GROUNDWATER STUDIES:

- Mission Viejo Golf Course Groundwater Studies – Mission Viejo, Orange County, CA: Evaluation of shallow groundwater conditions and its impact to a proposed lake facility and for installing a utility crossing under an active creek area.
- Groundwater Study for San Juan Creek Revetment – Rancho Mission Viejo, Orange County, CA: Excavated numerous borings and test pits to observe groundwater levels adjacent to San Juan Creek. Groundwater data was utilized for design of revetment system which included jet grouting and soil cement.

MISCELLANEOUS PUBLIC WORKS AND UTILITY:

- KMEP Jet Fuel Line Relocation, PA-1 – Kinder Morgan Energy Partners, Orange County, CA: Geotechnical investigation for relocation of existing jet fuel line within Planning Area 1 of Rancho Mission Viejo.
- KMEP Jet Fuel Line Relocation, Ortega Highway – Kinder Morgan Energy Partners, Orange County, CA: Geotechnical services for jack-and-bore relocation of existing jet fuel line below Ortega Highway.
- Cellular Sites at Ladera Ranch – RMV Telecom, Orange County, CA: Geotechnical investigation and project management during design and construction of cellular sites.

SEISMIC REFRACTION AND RIPPABILITY PROJECTS:

- Murrieta Hills Rippability Study – Pulte Homes, Murrieta, CA: Seismic refraction and rippability study to evaluate granitic rock in area of proposed housing development.
- Elephant Hill Rippability Study – Centex Homes, Pomona, CA: Seismic refraction and rippability study to evaluate volcanic rock in area of proposed housing development.
- Hwy. 395 Rippability Study - Mono County, CA: Seismic refraction and rippability study to evaluate glacial till and volcanic rock in area of proposed roadway.
- Helix Water District Rippability Study – San Diego, CA: Seismic refraction and rippability study to evaluate granitic rock for expansion of water district facilities.

MISCELLANEOUS EVALUATIONS OF GEOLOGIC HAZARDS PROJECTS

- Geologic Site Assessment Pertaining to Rock Fall - Silverado Canyon Road, County of Orange, CA: Geologic site assessment following a rock fall event within a slope area located above Silverado Canyon Road. Investigation included field mapping of rock areas where future rock fall events could originate from.
- Geologic Evaluation of Pump House Shaft Excavation - San Diego County Water Authority, Lake Hodges, Escondido, CA: Geologic mapping and evaluation of exposed rock conditions following shaft excavation blasts to help identify causes related to block-type rock failures.
- Debris Flow Analysis, Ortega Gateway – Rancho Mission Viejo, CA: Calculations and analysis of debris flow hazards affecting residential development. Also assisted with design of detention facilities to mitigate debris flow hazard.

EXPERT WITNESS

- Expert Witness for Jones & Beardsley – Blasting Damage Complaint, Sherwood Land Development, Thousand Oaks, California.
- Expert Witness for Lee, Hernandez, et al. - Blasting Damage Complaint, Terravita Home Construction, Henderson, Nevada.