

# Murbach Geotech

[murbachgeotech.com](http://murbachgeotech.com)

## DIANE MURBACH



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### **EDUCATION:**

Master of Science GEOLOGY, 1994  
San Diego State University, CA  
Bachelor of Science GEOLOGY, 1982  
Minor Computer Science,  
Eastern Wash. University, Cheney, WA

### **REGISTRATION:**

California - Professional Geologist (PG) #5285  
Certified Engineering Geologist (CEG) #1884  
Oregon - Registered Geologist #G1424  
Certified Engineering Geologist #E1424  
Washington - Geologist & Engineering Geologist #1869  
Arizona - Registered Geologist #27043

### **30 YEARS MURBACH GEOTECH:**

#### **JANUARY 1986 TO PRESENT: ENGINEERING GEOLOGIST, Murbach Geotech**

Principal Certified Engineering Geologist performing part time to full time geologic and geotechnical services. Responsible for business set-up, marketing, finance, graphics, project management, and technical review. Provides as-needed development permit and process recommendations, specializing in land use within the City of San Diego.

### **35 YEARS EXPERIENCE:**

#### **AUGUST 2011 TO NOV 2014: DEVELOPMENT PROJECT MANAGER, City of San Diego [RETIRED]**

Managed engineering projects, contracts, and meetings for the Facilities Financing section of the Development Services Department (DSD). Provided a range of project management duties and responsibilities including acting as a liaison between Facilities Financing and other DSD divisions. Created agendas and managed the Development Monitoring Team, participated in the Automated Taskforce Team, and updated Reimbursement Agreements. Processed and managed City contracts for consultants to verify developer built public facilities subject to reimbursement. Ensured developer contribution obligations outlined in tentative maps, permits, and environmental documents were tracked and fulfilled. Created procedures and trained staff for processing development projects. Trained staff to utilize the department's computer Project Tracking System.

#### **NOVEMBER 2001 TO SEPT 2011: DEVELOPMENT PROJECT MANAGER 2, City of San Diego**

Managed development projects within the City of San Diego. Included technical project review and management for Public and Private development. Promoted to the Affordable-Sustainable Expedite program March 2004 to provide twice as fast processing for projects providing affordable or sustainable development. Managed complex land development projects requiring discretionary permits from all decision makers. Project Management skills included: providing excellent customer service; working relationships with all stakeholders; attention to detail; interpreted codes/regulations/policies/standards; written skills preparing project status letters, hearing reports, permits, resolutions and ordinances; graphic skills preparing site maps, project attributes, and PowerPoint presentations; oral communication skills; and the willingness to take on difficult tasks. Specific project skills required coordination and knowledge with up to twenty disciplines such as engineering, environmental and planning, several outside agencies, maintaining expedited project deadlines and schedules, organized and maintained project diaries and official project approvals. Volunteer opportunities included: on going creation, revisions, and updating critical processing procedures for DSD; served as chair for the 2003-2005 Departments Employee Committee, providing suggestions, developing a Department Communication Plan and acquiring needed equipment for employees.

**NOVEMBER 1999 TO 2001: ASSISTANT ENGINEERING GEOLOGIST, City of San Diego**

Reviewed discretionary and ministerial permits for Geology utilizing the City computer and grading plan check process. Verified compliance with permit conditions. Reviewed for adverse geotechnical conditions such as landslides, faults, slope stability, and groundwater. Confirmed that geotechnical hazards are mitigated with engineering designs such as slope buttresses, stability fills, subdrains, or ground modifications. Reviewed as-graded/as-built conditions for final project bond release. Developed and maintained a data tracking system for 200 as-graded projects. Prepared City formatted memos and letters for each project review. Attended meetings with applicants and attend hearings as necessary. Advised and assisted customers at engineering counter and by phone questions regarding the geological characteristics of the San Diego area. Supervised student geologists with maintaining the cities geologic hazard maps, and LDR Geology's Project Tracking System. Developed formats to standardize LDR Geology's memos and letters.

**JANUARY 1998 TO NOVEMBER 1999: ENGINEERING GEOLOGIST, Murbach Geotech**

Principal Certified Engineering Geologist performing various geologic and geotechnical services, in Oregon, Washington and California. Responsible for business set-up, marketing, finance, project management and technical review. Investigated and prepared reports for hillside development, aggregate mine permitting, earthquake and landslide investigations, geologic hazard-geotechnical issues for Insurance company claims and Real Estate transactions, and 3<sup>rd</sup> party review for hillside development.

**APRIL 1995 TO JAN. 1998: SR. ENG. GEOLOGIST: David J. Newton Associates, Portland, OR**

Senior engineering geologist responsible for geologic hazard investigations, and managing geotechnical/reclamation plan projects in connection with potential aggregate mines and/or expansions of existing mines. Managed various consultants for aggregate client applications under the Oregon Goal 5 rule for protecting significant aggregate mines. Management of teams included hydrological, wetlands, wildlife, noise, traffic, air, and archaeology reports requirements and issues concerning zoning and permitting.

**MAY 1987 TO APRIL 1995: CONTRACT ENG. GEOLOGIST, Murbach Geotechnical, San Diego, CA**

Served as a Certified M/WBE consulting engineering geologist on a contractual basis. In this capacity performed various geologic services for agencies in Southern California and Oregon, geotechnical engineering firms, environmental consulting firms, Insurance company claims, and Real Estate transactions. Provided geotechnical report review and construction inspection management to the City of Oceanside, California for a three-year period. Other services included: grading inspection, research, plan review, subsurface exploration and report preparation for proposed site developments; landslide investigations and seismic fault hazard review; surface mining reclamation; environmental investigations (LUFT); and oral presentations to Boards/Committees.

- **JULY 1994 TO APRIL 1995:** Provided engineering geologic services for agencies, geotechnical and environmental consulting firms. Part of the research team conducting a research project Holocene earthquake history of the Rose Canyon fault zone, San Diego, CA, funded by NEHRP-USGS through Dr. Tom Rockwell, San Diego State University (March-December 1995).
- **JANUARY 1994 TO JUNE 1994:** Conducted a research project "Characteristics of Fault Rupture Adjacent to Distressed Structures," awarded by EERI/FEMA. Excavated fault trenches at three structures damaged by direct fault displacement from the Landers 1992 earthquake fault rupture. The investigation documented surface and subsurface fault rupture geometry and described how ground movements resulting from fault rupture affected the structures while working with Geology/Neotectonics, Dr. T.K. Rockwell, San Diego State U., and Geotechnical Engineering, Dr. Jon Bray, U. of CA, Berkeley.
- **JULY 1992 TO DECEMBER 1993:** Provided geologic services for agencies, geotechnical and environmental consulting firms, and Real Estate transactions. Services included Surface Mining Reclamation; in-grading geologic inspection and review for developments; Alquist-Priolo fault hazard review; Leaky Underground Storage Tank (LUFT) investigation; and geologic hazard reports.

- **MAY & JUNE 1992:** Columbia County, St.Helens, OR - Contract; Interpreted Surface Mining Ordinances, organized and reviewed nine surface mining permits, conducted field inspections, attended board and committee meetings, developed criteria for the County to establish a permanent Surface Mining Administration and enforcement Program, and presented conclusions orally and in a written report.
- **1989-APRIL 1992:** City of Oceanside, CA - Reviewed geotechnical reports and Grading Plans submitted for land development for conformance to the City Engineering Manual and Grading Ordinance. Evaluated proposed geotechnical mitigation measures, resolved investigation, report or mitigation disputes with meetings or review letters. Attended grading preconstruction meetings, assisted grading inspectors with field problems, reviewed geotechnical construction changes, and provided final approval of geotechnical reports and grading plans for bond release. Maintained computer database for grading/development plan log and bond log. Developed and maintained a geologic/soil report file system. Answered phone and counter questions concerning geology or soils engineering issues. Reviewed and enforced clean up for hazardous material contaminated sites for conformance to local and state requirements. Determined surface mining sites requiring reclamation plans per S.M.A.R.A. (Surface Mining Act of 1975, State of California). Managed, inspected and enforced the City Reclamation Ordinance for 5 mining operations.
- **1987-1988:** Geopacifica, Encinitas, CA - Inspected grading operations for conformance to local standards and the Uniform Building Code; and geologic studies for the City of Poway and Oceanside. Conducted geotechnical investigations of distressed structures for Insurance companies. Performed landslide investigations and down-hole logged exploratory borings. Performed concrete inspection and sampling for compressive strength, and in-place density testing of soils (Troxler nuclear testing certification).
- **1987:** Leighton & Assoc., Irvine, CA - Performed research, plan review, subsurface exploration and report preparation for proposed site developments, and landslide investigations.

**1986-1987: ENGINEERING GEOLOGIST: Kleinfelder, San Diego, CA**

Conducted engineering geologic studies for residential and commercial development. Performed research, geologic field mapping, detailed logging of exploratory borings and trenches, aerial photo review, landslide investigations, laboratory assignment of soil samples, report preparation and in-grading geologic inspection.

**1983-1986: ENGINEERING GEOLOGIST: Leighton & Assoc., San Diego, CA**

Conducted geologic and soils investigations for residential and hillside developments. Including aerial photo analysis, site reconnaissance, geologic mapping, subsurface exploration and landslide investigations, seismic profiles, data analysis, report writing, environmental site assessments, and geologic hazard reports for insurance agencies.

**1979-1983: GEOLOGIST: United States Bureau of Reclamation, Grand Coulee, WA**

Temporary appointments for the Riverbank Landslide Stabilization Program. Performed logging of core, mapping, gravimeter, seismic reflection and refraction profiles. Gathered and reduced data from drill holes, pump tests, drainage wells and graphic water level recorders. Installed, calibrated and maintained geotechnical instrumentation. Monitored earth pressure cells and water level readings in drill hole piezometers and measured stream flows.

**1977-1982: PROFESSOR ASSISTANT: Eastern Washington University, Cheney, WA**

Geology Department- Labeled rocks and fossils, organized map room, computer data entry, and assisted in correcting tests. Math Department- Corrected tests for Calculus class.

**TEACHING EXPERIENCE: San Diego State University**

January to December 1994: Geology 101 Dynamics of the Earth Laboratory. August to December 1994:

Geology 101 Lab Coordinator; Responsible for 13 Lab set-ups, organization/breakdown for 5 Teaching Assistants.

**PROFESSIONAL SOCIETIES & OFFICES HELD:**

- San Diego-Tijuana Earthquake Scenario Update: **Earth Science Working Group 1, Chair 2015-Present.**
- San Diego Geological Society, Inc. (SDGS); **Board of Directors, Secretary 2008-Present.**
- Association of Environmental & Engineering Geologists (AEG) Member; Oregon Section Vice President 1999-2000; OR Treasurer 1996-1998; OR Secretary 1998-1999.
- South Coast Geological Society (SCGS) Member; **President 1994**, Vice President 1993, Secretary 1992.
- San Diego Assoc. of Geologists (SDAG) Member; **President 1990**, VP 1989, Sec. 1988, Treasurer 1987.
- Geological Society of America (GSA) Member.
- Earthquake Engineering Research Institute (EERI) Member.
- State Board of Registration for Geologists- Sacramento, CA; Prof. Affairs Committee, 1994 - April 1995.
- Toastmasters, ATM; Vice Pres. Admin. 1991; Vice Pres. Education 1997; VP Membership 1998-1999.

**LEADERSHIP:**

1991 Geological Society of America Committee for the Annual meeting in San Diego, CA.  
 1994 EERI Earthquake Reconnaissance Team – 6.7 Northridge, CA.  
 1996 Geological Society of America Committee, Cordilleran Section Annual meeting in Portland, OR.  
 1997 Association of Engineering Geologist Publicity Chairman for the Annual meeting in Portland, OR.  
 1997-1998 Leadership Newberg Course; a program to develop civic-oriented leaders.  
 1998-1999 Chairman for Leadership Newberg Program.  
 1998 Project Management Course for Professional Engineers.  
 1998 Chairman for Newberg Chamber of Commerce Vintage Festival Wineries and Talks.  
 1999 Newberg Transportation Workshop Committee.  
 1999 Received Toastmasters ATM Silver Communication Award.  
 2000-Current SDAG Past President Steering Committee.  
 2003-2005 City of San Diego Departments Employee Committee Chair.  
 2005 Seismic Hazard Course Chair for San Diego ASCE Geotech & SDAG.  
 2007 AEG Moderator Chair Annual Meeting Committee Los Angeles CA.  
 2008 AEG Awards Committee Chair.  
 2010 GEER Earthquake Reconnaissance Team – 7.2 N Baja Mexico.  
 2011 EERI Annual Meeting Planning Committee & Moderator in San Diego, CA.  
 2016 AEG Annual Meeting Committee Kona Hawaii.

**PUBLICATIONS, ABSTRACTS & PRESENTATIONS:**

1986, "*Hillside Development Presenting Typical Mitigative Measures, San Diego County, California*", by Diane Murbach, *Abstract and Poster Session* Annual AEG Meeting, San Francisco, CA.

1989, "Seismic Risk in the San Diego Region, Special Focus on the Rose Canyon Fault System/Proceedings"; Publication edited by Glenn Roquemore, Diane Murbach on Editorial Committee, 106 p.; includes abstract: *Using Small Scale Fault Features to Discern the Overall Kinematic Fault Structure Along the Rose Canyon Fault System, San Diego, CA*" by Chapman, D & M Murbach, Frost, et al., p. 21, and presented as an Abstract and Poster Session, GSA Annual Cordilleran and Rocky Mt. Section Meeting; includes paper: *Fault Features Between La Jolla, USA and Ensenada, Mexico, Field Trip*", by D. Murbach, 23 p.

1992, "AEG, 35th Annual Meeting, Proceedings"; *A Geotechnical Reviewer for a Small Agency, City of Oceanside, CA, with a Comparison of Grading Code Enforcement within agencies in San Diego County, CA, Abstract, Paper and Presentation* by Diane Murbach.

1994, "*Preliminary Report on the Seismological and Engineering Aspects of the January 17, 1994 Northridge Earthquake*", "*Preliminary Report on the Principal Geotechnical Aspects of the January 17, 1994 Northridge Earthquake*" by Stewart, Bray, Seed and Sitar; 245 p. (Report No. UCBIERC-94/08; Reconnaissance team contributions for EERI & UC Berkeley).

1994, "*Mojave Desert*", South Coast Geological Society Annual Field Trip Guidebook #22, Martin Stout Volume, edited by Diane Murbach and Joan Baldwin, October, 672 p., includes "*Preliminary Observations: Characteristics of the 1992 Landers Surface Fault Rupture Adjacent to Distressed Structures*", by Diane Murbach, Thomas K. Rockwell and Jonathan D. Bray, p. 590-598.

1994, "*On the Response of Foundations to Fault Rupture: During the 1992 Landers Earthquake*", by Diane Murbach, Thomas Rockwell, Jonathan Bray and Carlos Lazarte, GSA Annual Meeting, Seattle, WA, *Abstract and Presentation* by Diane Murbach.

1994, "*Characteristics of the 1992 Fault Rupture Adjacent to Distressed Structures, Landers, CA*", by Diane Murbach, Thomas Rockwell and Jonathan Bray, *Presented at the August S. Calif. Section AEG*, by Diane Murbach, and final report November-published by the Earthquake Engineering Research Institute, 73 p. *Presented at the January 1995 San Diego Geotechnical Section of ASCE*, and the October 1997 Portland AEG Annual meeting.

1994, "*Characteristics of Fault Rupture Adjacent to Distressed Structures, Landers, California*", by Diane Murbach, Master of Science in Geology thesis, San Diego State University, December 9, 108 p.

1999, "*The Relationship of Foundation Deformation to Surface and Near-Surface Faulting Resulting from the 1992 Landers Earthquake*," by Diane Murbach, Thomas Rockwell and Jonathan Bray, in *Earthquake Spectra*, February, Volume 15, Number 1, p. 121-144.

2000, "*Paleoseismology of the Johnson Valley, Kickapoo, and Homestead Valley Faults: Clustering of Earthquakes in the Eastern California Shear Zone*," by T. K. Rockwell, S. Lindvall, M. Herzberg, D. Murbach, T. Dawson, and G. Berger, in *Bulletin of the Seismological of America*, 90, 5, pp. 1200 - 1236, October.

2003, "*Central-Southern Elsinore Fault Zone: Summary and Resource Information for the SDAG/SCGS Field Trip, San Diego County, California*" by M. Murbach and D. Murbach, in *Geology of the Elsinore Fault Zone San Diego Region, SDAG/SCGS*, pp. 15-23.

2010, "*Liquefaction Observations Mexicali, Mexico – April 4, 2010 Earthquake*," presented at the Cordilleran Geological Society of America Meeting, May 29, 2010.

2010, "*Preliminary Report on Seismological and Geotechnical Engineering Aspects of the April 4, 2010  $M_w$  7.2 El Mayor - Cucapah (Mexico) Earthquake*," Geo-Engineering Extreme Events Reconnaissance (Geer) Association - Turning Disaster into Knowledge; Report No. GEER-023; Reconnaissance and contributions dated June 4<sup>th</sup>, 2010.

2010, "*Regional Geology - April 4, 2010 El Mayor-Cucapah  $M7.2$  Earthquake (GEER)*," presented at the EERI San Diego Chapter Meeting, June 30, 2010.

2011, "*Easter Earthquake - Liquefaction Observations Mexicali Valley, Mexico*," presented at the South Coast Geological Society Meeting January 10, 2011, and the San Diego Association of Geologists Meeting March 16, 2011.

2014, "*2010 Easter Earthquake - Engineering Geology Observations*," by Diane Murbach, published in *Coast to Cactus, Geology and Tectonics, San Diego to Salton Trough, California*" San Diego Association of Geologists, pp. 119-134.

2015-2016, "*San Diego-Tijuana Earthquake Scenario Update*," Group presentations; Working Group 1 Chair – D Murbach - talks presented: Initial Workshop UCSD January 24, 2015; SEAOSD Structural Engineers Meeting October 13, 2015; ASCE Civil Engineers Meeting February 23, 2016.

2016, "*The San Diego-Tijuana Earthquake Planning Scenario Update: The Design Earthquake*," presented at the San Diego Association of Geologists Meeting April 20, 2016.



2016, "Preparing A Region For Earthquake Disasters – The San-Diego-Tijuana Earthquake Scenario Project," submitted to 16<sup>th</sup> World Conference on Earthquake Engineering, 16WCEE 2017, Santiago Chile, January 9th to 13th 2017, Paper N° 2546, by L. Van Den Einde, A. Celestino, D. Murbach, A. Court, D. Swanson, L Ortiz, R. Thiele, and J. Meneses.

2017, "Timing of Late Holocene Earthquakes on the Rose Canyon Fault at Old Town, San Diego CA," by D. Singleton, T. Rockwell, D. Murbach, M. Murbach, J. Maloney, E. Marquez, L. Weidman, Y. Levy and S. Rugg, presented at the Cordilleran Geological Society of America Meeting, May 24, 2017.

2017, "San Diego-Tijuana Earthquake Scenario Update," Group presentations; Working Group 1 Chair – D Murbach - talks presented: AIA Architects Meeting August 9, 2017; SEAOSD Structural Engineers CA Conference Keynote Speakers September 13, 2017.

### **CONTINUING EDUCATION:**

1986 SouthWestern College, Chula Vista, CA: Soil Engineering.

1988 to 1994 Master of Science Geology Graduate Program, San Diego State University, CA.

1992 AEG, Long Beach, CA: Short Course, Ground Water Monitoring and Remediation.

1992 AEG, Long Beach, CA: Short Course, Standard of Care and the Law.

1993 CA Division of Mines & Geology, Irvine, CA: Preparation, Review of Geology\ Seismicity Reports.

1993 AEG, Irvine, CA: Applications of Soil Stratigraphy to Engineering Geology.

1993 AEG, CA: Short Course, Landslides: Recognition, Investigation & Mitigation.

1994 AEG, Cal. State L.A., CA: Short Course, Seismic Hazard Analysis.

2000 AEG, CA: Short Course, Soil Stratigraphy & Trench Logging.

2005 SDAG/ASCE, Short Course, Evaluation & Mitigation of Seismic Hazards.

### **AWARDS:**

1989 San Diego State University, Geological Sciences, Outstanding Research Award (Joint Project).

1994 EERI/FEMA NEHRP 3rd Annual PROFESSIONAL FELLOWSHIP AWARD-National Earthquake Hazards Reduction Program: Interdisciplinary Research Project, "Characteristics of Fault Rupture Adjacent to Distressed Structures", with Dr. T.K. Rockwell, Professor of Geology, San Diego State University & Dr. Jon Bray, University of CA, Berkeley.