# Suji Somasundaram, PhD, PE, GE

## Principal Engineer

### Education

- Ph.D., Geotechnical Engineering, Geomechanics, University of Arizona, 1986
- M.S., Geotechnical Engineering, Asian Institute of Technology, 1981
- B.Sc., Civil Engineering, University of Sri Lanka, 1978

### Registration and Certification

- Geotechnical Engineer, California, 1994, #2263
- Professional Civil Engineer, California, 1989, #44199
- 40-Hour OSHA Trained, 29 CFR 1910.120(e)(2)/8 CCR 5192
- 24-Hour MSHA Trained

### Experience

32 years

### With AES

17 years

Dr. Suji Somasundaram has 32 years of experience in applied geotechnical engineering including geotechnical site investigations; siting, design and closure of solid/hazardous waste management facilities; design and analysis of tunnels, pipelines, reservoirs, and dams; foundations for bridges and industrial and commercial structures; slope stabilization and landslide mitigation; seismicity evaluations; liquefaction evaluation and mitigation; and finite element analysis of complex geotechnical/environmental problems. His solid waste engineering experience includes design and construction of landfill liners and covers, preparation of final closure plans, design of alternative covers, design and implementation of moisture monitoring programs, and CQA and CM support for major landfill expansions and final closures.

He has managed complex geotechnical projects including investigations for the Eastside Extension of the Los Angeles Metro Rail Red Line subway system; combined 72-mile Rio Hondo and Century reclaimed waterline projects for the Central Basin Municipal Water District; liquefaction mitigation and foundation design for the Long Beach Aquarium and Downtown Harbor; widening of SR-22 Freeway for the Orange County Transportation Authority; and the Westlake Farms Composting Facility, Joint Water Pollution Control Plant (JWPCP) expansion, and the Puente Hills Material Recovery Facility for the LA County Sanitation Districts.

He served as the AES Project Manager for engineering studies and designs at several Southern California landfills including the OII and WDI Superfund sites; the Bowerman, Prima Deschecha, and Olinda Alpha landfills in Orange County; Puente Hills, Calabasas and Bradley landfills in LA County; Colton, San Timoteo, and multiple desert landfills in San Bernardino County; Lamb Canyon, Badlands, West Riverside and Double Butte landfills in Riverside County; and Lost Hills and Bakersfield landfills in Kern County.

He has specialized in computer applications to geotechnical problems including modeling of unsaturated flow through landfill covers using UNSAT-H, dynamic slope stability analysis, foundation analysis, soil-structure interaction analysis, and liquefaction studies. He has authored a number of publications pertaining to landfill, geotechnical and earthquake engineering. He has extensively interfaced with multiple regulatory agencies, including the DTSC, USEPA, USACOE, State Water Resources Control Board (SWRCB), RWQCBs in Los Angeles and Santa Ana Regions, and CIWMB.

He serves as a Visiting Lecturer in Geoenvironmental Engineering at the University of California, Los Angeles.

His relevant experience includes:

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### Professional Activities

- Visiting Lecturer in Geoenvironmental Engineering, University of California, Los Angeles
- Unsaturated Soils Committee, GeoInstitute, American Society of Civil Engineers (ASCE)
- Reviewer, Journal of Geotechnical and Geoenvironmental Engineering
- Member, Geosynthetics Institute

**SOLID WASTE ENGINEERING PROJECTS**

- **Frank R. Bowerman Landfill, Orange County, California**
  *Project Manager* for design of the East Flank Landslide Remediation project. Project included borings up to 400 feet deep, field instrumentation including, inclinometers, vibrating wire piezometers, and TDR sensors, static and seismic slope stability analyses and evaluation of alternate landslide remediation schemes. Also included investigating and remediating spontaneous combustion occurring in organic-rich shale (landslide debris).

  *Project Manager* for multidiscipline engineering services including investigation, design and construction in various disciplines including A-E services, solid waste services, LFG evaluation and geotechnical and hydrogeologic characterization. The key tasks have included geotechnical investigation of eastern flank landslide including installation of groundwater monitoring wells and slope inclinometers, stability analyses and conceptual design of stabilization measures including tieback anchors.

  *Lead Geotechnical Engineer* for the Design of Landslide Backcut Excavation project involving stability analyses, cut slope design, buttress design, .and design of horizontal drains.

- **San Bernardino County California – Preparation of Non-Water Release Corrective Action Plans (NWRCAPs)**
  *Project Manager* for preparation of NWRCAPs for the following landfills: Apple Valley, Baker, Lucerne Valley, Milliken, Morongo Valley, Newberry, OII, Phelan and Yermo landfills..

- **Calabasas Landfill, Los Angeles County, California**
  *Project Manager* for Cover Characterization and Water Balance Modeling of 95 acres of in-place sideslope cover to have it approved as an alternative evapotranspirative cover by the RWQCB. Included 45 borings, laboratory testing and water balance modeling using UNSAT-H.

- **Puente Hills Landfill, Los Angeles County, California – Cover Characterization, Percolation Modeling and Performance Monitoring**
  *Project Manager* for developing and implementing CQA Testing Protocols and Implementation Plan for ongoing construction of alternative evapotranspirative final cover for the sideslopes of the Puente Hills landfill.

  *Project Manager* for Cover Characterization and Water Balance Modeling of 72 acres of in-place sideslope cover to have it approved as an alternative evapotranspirative cover by the RWQCB. Included 40 borings, laboratory testing and field permeability tests using the Boutwell method.

*Project Manager* for Moisture Monitoring Study of the front face final cover at the Puente Hills landfill. Installed, calibrated and monitored 6 stacks of Time Domain Reflectometry (TDR) probes to evaluate performance of the 8-foot thick cover.

*Project Manager* for characterization of 94 acres of existing monocover on the front slope face. Characterization was performed to evaluate geotechnical and hydraulic properties, unsaturated flow modeling, and demonstrating equivalence of the existing cover to the Title 27 prescriptive cover. Investigation included 47 hand auger borings to a depth of 10 feet, 47 BATTM tests and laboratory tests for saturated and unsaturated hydraulic characteristics.

- **Mesquite Regional Landfill, Final Cover Design, Imperial County, California**
  *Project Manager* for study evaluating and designing alternative final cover systems for the side slopes and top deck of the proposed 2300-acre mega-landfill. Developed procedures for evaluating unsaturated hydraulic characteristics of gravel-rich cover soils and performed percolation modeling.

- **Operating Industries Inc. (OII) Landfill, North Parcel Closure, Monterey Park, California**
  *Geotechnical Engineer* during design of final closure for the 30-acre North Parcel Brownfield development at the OII Superfund site. Designed alternative cover systems including evapotranspirative and GCL covers, performed slope stability analyses, developed waste reconsolidation plan to limit settlements, performed feasibility evaluations of ground improvement including dynamic compaction, and foundation systems for proposed structures on landfill. Served as QA Engineer during construction.

- **Prima Deshecha and South Region Landfills, Orange County, California**
  *Project Manager* for As-Needed Geotechnical Services – Projects included preparation of plans and specifications and CQA during installation of piezometers in the Zone 1 Phase C3/D1 area; and evaluation of Slope distress along La Pata Avenue and C3 area of the Prima Deshecha landfill and recommendations for repair.

- **Camp Roberts Landfill Cell Expansion, Paso Robles, California**
  *Project Manager/CQA Manager* during construction of 12-acre landfill cell at the Camp Roberts landfill. The project involves construction of new landfill cell with composite liner system and LCRS constructed over an existing waste pile that was surcharged/compacted in place. Scope included design support, CQA during mining and processing of low-perm layer materials and CQA during construction of composite liner system.

- **Bakersfield Sanitary Landfill , Kern County, California.**
  *Project Manager/CQA Manager* during final closure of 95-acre Bakersfield Sanitary landfill. The project included borrow area investigations, characterization of existing cover, peer review of final closure construction documents, and CQA during construction of an alternative evapotranspirative final cover.

- **Lost Hills Landfill, Alternative Cover Design, Kern County, California**
  *Project Manager/Lead Geotechnical Engineer* for design and CQA services for landfill closure involving 2-foot thick alternative evapotranspirative final cover for the 6.7-acre unlined facility in Kern County. Designed a thin evapotranspirative cover using onsite cover material sources, based on UNSAT-H analyses. CQA services included Pan Lysimeter construction and monitoring.

- **Operating Industries Inc. (OII) Landfill, Final Closure, Monterey Park, California**
  *Resident Geotechnical Engineer* during design and construction of an alternative final cover system for 145-acre OII Landfill Superfund site in Monterey Park, California. The 3½-year-long design-build project included 1.5 million cu. yds of earthwork, construction of 50 acres of geogrid reinforced steepened slopes utilizing 200,000 sq. yds. of geogrids, and 1.9 million sq. ft. of

GCL placement. Design work included unsaturated flow modeling to support monocover design, stabilization of 250-foot-high, 1½:1 (horizontal:vertical) slopes with geogrid veneer reinforcement and geogrid walls, development of cover design and specifications and presentations to local and federal regulators. Work also included design and construction of detention basins, surface water management facilities (ditches and channels) several miles of roadways, and foundations for the landfill gas treatment system. Installed and monitored eight stacks of TDR moisture probes and 4 weather stations.

- **Colton Sanitary Landfill, Phase 2 Closure, San Bernardino County, California**
  *Project Manager and Task Leader* for final cover design and preparation of Final Closure and Postclosure Plans for Phase 2 closure including cover characterization, alternative cover design and infiltration modeling.

- **San Timoteo Landfill, PCPMP, San Bernardino County, California**
  *Lead Geotechnical Engineer* for preparation of Preliminary Closure and Postclosure Maintenance Plan for 114-acre footprint. Included alternative cover design for lined and unlined portions of the landfill and coordination of drainage, grading and LFG system designs.

- **55th Way Landfill, Long Beach, California**
  *Project Manager* for design of an alternative final cover system, construction CQA, and regulatory coordination during construction of final cover and conversion of the former 55th Way landfill into a public park and recreational area. Designed an alternate GCL cover and geocomposite drainage system for the irrigated 5.5 acre parcel of the landfill that is being converted into a park, and obtained regulatory approval from the RWQCB and DHS in record time.

- **WDI Superfund Site, Final Cover Design, Santa Fe Springs, California**
  Evaluated and designed multiple alternate cover systems for the final closure of a 35-acre Superfund site. The cover designs included a RCRA equivalent GCL/Geomembrane cover, and Title 27 equivalent evapotranspirative cover, GCL/soil cover and asphalt cover. Work included in situ cover characterization, laboratory testing for unsaturated flow parameters, and unsaturated flow modeling using the UNSAT-H code.

- **Bradley Landfill, Alternative Cover Evaluation, Sun Valley, California**
  *Geotechnical Engineer* responsible for evaluating existing cover as a suitable final monocover for the landfill. Work included in situ cover characterization for a 30 acre cell by 30 test pits including laboratory testing for permeability tests, and unsaturated flow parameters, and cover evaluation using unsaturated flow modeling.

- **Santiago Canyon Landfill, Orange County, California**
  Evaluated alternative covers for the final closure of the Eastern Perimeter Road area of the Santiago Canyon Landfill. Performed preliminary design of a Title 27 equivalent cover utilizing low permeability AC.

- **Coyote Canyon Landfill, Orange County, California**
  Provided on-call geotechnical services for post-closure maintenance of the final monolithic cover, revised post-closure maintenance plans, reviewed moisture monitoring data, and provided CQA services for cover reconstruction and repairs to surface water management system.

- **Milliken Sanitary Landfill, San Bernardino County, California**
  *Project Manager* for CM services during final cover construction of the 75-acre Phase 3 closure at Milliken Sanitary Landfill. The final cover construction includes a 4-foot thick alternative evapotranspirative cover, import of cover material, drainage improvements, LFG improvements, roads, and landscaping.

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- **Calabasas Landfill, Los Angeles County, California**
  *Lead Geotechnical Engineer* for the geotechnical investigation of the proposed southeastern cut at Calabasas Landfill. Conducted extensive laboratory test program to develop unsaturated hydraulic conductivity and volumetric moisture content functions for bedrock, alluvium and fill. Developed unsaturated flow parameters for finite element analyses of seepage flow.

- **Mesquite Regional Landfill, Master Planning, Imperial County, California**
  *Project Manager* on multidiscipline team providing Master Planning Services for Los Angeles County Sanitation Districts', first Waste-by Rail Project. The 2,300-acre landfill, located adjacent to the Mesquite Gold mine in Imperial County, is being designed for a 100-year life and has been permitted for a capacity of 600 million tons and daily disposal rate of 20,000 tons. The AES scope of work included characterization of landfill footprint, characterization and quantification of material resources including sand and gravel deposits, mine waste stockpiles, mine leach pads, 2.4 million CY of clay stockpiles, and potentially mineable in situ clay deposits, evaluation of alternative liner designs, and foundation evaluations for intermodal yard and support facilities.

- **Mesquite Regional Landfill Aggregate and Soil Cement Evaluations, Imperial County, California**
  *Project Manager* during investigations to evaluate crushed aggregate products derived from onsite alluvial sources, evaluate quality and volume of in situ and stockpiled basalt for railroad ballast, evaluate soil cement mix design for erosion protection of planned drainage channels, and evaluate the depth to competent material for a cutoff wall to be constructed across a natural drainage channel. Included implementing several crushing scenarios, coordinating a detailed test program and providing recommendations on aggregate resources and utilization.

- **Mesquite Regional Landfill, Technical Design Report (TDR), Imperial County, California**
  *Project Manager and Coauthor* during preparation of Technical Design Report (TDR) for Composite Liner Cell 1 for submittal to regulatory agencies, including review of WDRs, alternative liner design and design calculations for alternative LCRS.

- **Team B Landfills and Waste Disposal Systems, San Bernardino County, California**
  *Project Manager* for on-call engineering support services for Team B landfills. Projects included preparation of fill sequencing plans for Colton and San Timoteo Landfills, Preliminary Closure and Postclosure Maintenance Plans for San Timoteo Landfill, design of Heaps Peak scalehouse replacement, updating SWPPs for Newberry Springs and Yermo Landfills, peer review of Colton cell expansion design and biological monitoring at San Timoteo Landfill.

- **Puente Hills Landfill, Los Angeles County, California**
  *Project Manager* for the geotechnical investigation for siting and design of the proposed 215,000 sq. ft. materials recovery facility (MRF). The scope of work included review of liquefaction potential and settlement potential of fill and alluvium, stability analyses of cut slopes and landslides and foundation design.

  *As Lead Geotechnical Engineer*, conducted geotechnical investigations and preliminary design of in-situ stabilization measures for the 250-foot high "Nike" slopes at the Puente Hills landfill. Stabilization measures considered included soil nailing, pin piles, cast-in-place caissons and buttresses. Conducted cost comparisons of alternative stabilization schemes. Preliminary design included diameter, spacing and length of soil nails, pin piles and caissons, and specifications of structural elements.

- **Lead Geotechnical Engineer during Lower Western Cut construction.**
  *Lead Engineer* for slope stability analyses of conceptual cut, lined, and refuse fill slopes for the undeveloped "eastern canyons" area of Puente Hills Landfill. The analyses consisted of two- and three-dimensional stability analyses, analyses for seismic loading conditions including Newmark-type simplified deformation analyses. Developed alternative subgrade excavation plans for the Eastern Canyons area and analyzed final lined fill slope configurations.

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- **San Timoteo Landfill, Phase 2 and 3 Expansions, San Bernardino County, California**
  *Lead Geotechnical Engineer* for stability analyses of subgrade and refuse fill slopes for Phase 2 and 3 expansions. Performed seismic hazard analyses, 2-D seismic site response analyses using QUAKE/W and seismic deformation analyses for near-field and far-field sources. Designed stabilization measures for landfill slopes located less than a mile away from the San Jacinto fault zone.

- **Badlands Landfill, Cell Expansion, Riverside County, California**
  *Lead Geotechnical Engineer* for geotechnical investigation and analyses for 32-acre cell expansions. Work included drilling bucket auger borings, laboratory testing of geologic materials and interfaces, seismic hazard and seismic response analyses, static and seismic stability evaluations of subgrade slopes up to 430 feet in height, refuse fill slopes and landslides.

- **Lamb Canyon Landfill, Cell Expansion, Riverside County, California**
  *Lead Geotechnical Engineer* for geotechnical investigation for 22-acre Phase 2, Stage 3 expansion at site located 2 miles from the San Jacinto Fault zone. Work included fault investigation, subsurface exploration, laboratory testing of geologic materials and interfaces, seismic hazard and seismic response analyses, static and seismic stability evaluations of subgrade slopes, refuse fill slopes and landslides.

  *Lead Geotechnical Engineer* for the Phase 2, Stage 1 composite liner including testing for earthworks and geosynthetics. Performed QA/QC services for approximately 4,000 cu. yds. of low-permeability subgrade layer, earthworks and 900,000 sq. ft. of geosynthetics.

  *Lead Geotechnical Engineer* for geotechnical investigation for Phase 2 expansion including fault investigation, subsurface exploration, geotechnical data analysis, and slope stability evaluation.

- **Double Butte Landfill, Riverside County, California**
  Served as *Task Manager* for Final Closure and Postclosure Maintenance Plans. Supervised preparation of final closure plan, postclosure maintenance plan, construction drawings, and specifications for the final closure of the 100-acre Double Butte Landfill in Riverside County, California. Work included existing cover evaluation, design of final cover, design of drainage system, seismic stability of final fill slopes, and review of groundwater and landfill gas monitoring system.

- **West Riverside Landfill, Riverside County, California**
  *Project Engineer* for landfill closure project for 40-acre municipal landfill. Work tasks included developing landfill cover system and surface drainage system design drawings, construction specifications, QA/QC plan, and preparation for a Final Closure and Postclosure Maintenance Plans.

- **Prima Deshecha Landfill, Orange County, California**
  *Lead Geotechnical Engineer* for slope stability analyses for Master Plan Development and Zone 1 design. Geotechnical investigations included detailed geologic mapping, exploratory trenching, drilling, laboratory testing, slope stability analyses, including evaluation of landslides and design of cut slopes.

- **Puente Hills, Scholl Canyon, Calabasas and Spadra Landfills, Los Angeles County, California**
  Conducted analytical study to evaluate the in-place stability of the Puente Hills, Scholl Canyon, Calabasas, and Spadra landfills under earthquake loading. Used 2-dimensional numerical techniques ('QUAD 4' and 'LINOS' Finite Element Codes) for seismic response analyses, and deformations of the landfill slope during earthquake loading. Evaluated waste material properties based on field testing and geophysics soundings.

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## Principal Engineer

- **Yermo Landfill, San Bernardino County, California**
  *Project Manager* for the design of final closure of the 20-acre landfill. Developed conceptual and preliminary designs for an alternative evapotranspirative cover utilizing onsite borrow sources. Conducted cost comparison of alternate cover system and performed computer modeling of the alternate cover system utilizing the HELP model.

**GEOTECHNICAL PROJECTS**

- **Westlake Farms Composting Facility, Kings County, California**
  *Project Manager* for geotechnical services for the design of Phase 1 improvements, including composting pads, Biofilter, mixing building, pump stations, mixing basins, stormwater reservoirs, wastewater treatment system, non-potable water system, buildings, roads and pipelines. Responsible for leading field investigations including borings, CPTs, piezometers, geotechnical and chemical testing, falling weight deflectometer testing and laboratory testing and providing geotechnical design recommendations included shallow and pile foundations; wick drains and surcharging for settlement control; rammed aggregate piers for structure support; soil stabilization to mitigate against expansive soils; protection measures to mitigate against very high sulfate and chloride content; and design of LTS, lime-flyash and SC mixes.

- **State Route 22 Widening, Advanced Planning Study, Orange County, California.**
  *Lead Geotechnical Engineer* during Post Advanced Planning Study (APS) investigation of the widening. Coordinated geotechnical investigations and Geotechnical Information Report for 12-mile long freeway widening with 32 bridges and 8 miles of retaining walls.

- **State Route 22 Widening, Design/Build Construction, Orange County, California.**
  As *Geotechnical Engineer* for the Program Manager, reviewed and approved geotechnical investigation/foundation reports for the bridges, retaining walls, sound walls and sign structures. Reviewed reports on behalf of Caltrans and OCTA.

- **MWD San Diego No.6 Pipeline, Riverside County, California.**
  *Project Manager* during a geotechnical investigation for a 6.8–mile-long pipeline alignment. Investigations included geologic mapping and conducting subsurface explorations consisting of borings and trenches.

- **West Long Beach Industrial Redevelopment, Long Beach, California.**
  *Project Manager* for a geotechnical investigation to evaluate the liquefaction hazard and foundation conditions for a 300-acre parcel located in the vicinity of the Port of Long Beach.

- **Joint Water Pollution Control Plant, Carson, California**
  *Lead Geotechnical Engineer* for a major facility expansion including digestion tanks, force main extension, road tunnel, gallery, seven 130-foot diameter settling tanks, cryogenic oxygen generation plant, railroad bridge and pipelines. Conducted seismicity studies, foundation analyses, pile foundation design, and shoring recommendations for excavations. Designed 30-foot high soil nail wall. Provided CQA during construction.

- **MWD Inland Feeder System, Los Angeles, California**
  *Geotechnical Engineering Task Leader* for geotechnical characterization of the pipelines and portal areas of the San Bernardino Mountains segment. This project for the Metropolitan Water District included approximately 50,000 feet of tunnel through hard metamorphic and granitic rock, two miles of pipelines through bouldery alluvium and no major fault crossings. Coordinated laboratory testing, test data analyses, and preparation of data and characterization reports for the pipelines and portals.

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- **Edom Hill Landfill, Riverside County, California**
  *Lead Geotechnical Engineer* during a preliminary geotechnical investigation to evaluate the suitability of a proposed transfer station site located in close proximity of the south branch of the San Andreas fault.

- **Metro Rail Red Line, Eastside Extension, Los Angeles, California**
  *Project Manager* for the geotechnical investigation of the Eastside Extension including 6.5-mile low twin tunnels and seven cut and cover crossovers and stations. Recommendations were provided for tunneling through soft ground, tunnel boring machines, station excavations, shoring support for temporary excavations, foundation design and dewatering. Work included 174 borings, 37 CPTs, 50 groundwater monitoring wells and 2 pump tests.

- **Alamitos Reservoir, Long Beach, California**
  *Lead Geotechnical Engineer* for a geotechnical investigation and slope stability analysis of cut and fill slopes below a graded hilltop housing 23 aboveground water storage tanks located within the Newport-Inglewood structural zone.

- **Long Beach Aquarium of the Pacific**
  *Project Manager* for geotechnical investigations for the 150-000 square foot Long Beach Aquarium of the Pacific. Performed seismic risk evaluations, designed liquefaction mitigation measures., ground improvement schemes and foundation design for the shoreline facility.

- **Rio Hondo Reclaimed Water Line Project**
  *Project Manager* for geotechnical investigation for design of the Central Basin Municipal Water District's 36-mile long reclaimed water pipeline and pump station project. The pressure pipeline runs through several cities and unincorporated areas of Los Angeles County

- **The Pike at Long Beach, Long Beach, California**
  *Project Manager* for geotechnical investigations for dredging, landfilling, and developing Queensway Bay downtown harbor and the Pike project. Investigations included on-shore and off-shore borings, CPTs, seismicity evaluations, liquefaction potential evaluations, seismic slope stability and deformation analyses, foundation design for 2,000 feet of seawall, pier and floating docks, ground improvement with approximately 1,500 stone columns, and pile foundation design.

- **Los Angeles Metro Rail-San Fernando Valley Tunnel, Los Angeles, California**
  *Project Manager* for the Preliminary Geotechnical Investigation of the San Fernando Valley East-West Segment of the Los Angeles Metro Red Line. Providing subsurface investigation and geotechnical evaluations of the engineering properties and tunneling characteristics of subsurface soils for approximately 14 miles of tunnels.

- **Wintersburg Channel Improvements, Orange County, California**
  *Project Manager* for evaluation of levee improvement alternatives for a segment of the Wintersburg Flood Control channel adjacent to the Bolsa Chica Wetlands. Levee improvement alternatives included soil cement embankment, sheetpiling, reinforced concrete box (RCB) structures and MSE walls. Evaluation included liquefaction potential, seismic stability, and seepage.

- **Berth 226-232, Port of Los Angeles**
  As *Project Manager* for the Berth 226-232 wharf 100-foot gage crane rail installation project at the Port of Los Angeles, coordinated evaluation of existing pile capacities, design of pile foundation, wave equation analysis of piles, slope stability analyses and liquefaction

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## Principal Engineer

- **San Joaquin Hills Transportation Corridor, Orange County**
  *Lead Geotechnical Engineer* for geotechnical investigation and design for 1,200-foot long San Diego Creek Bridge, the Aliso Creek interchange and Laguna Hills Drive overcrossing along the San Joaquin Hills Transportation Corridor. Work included extensive during, CPT testing and geophysics. Analyses included liquefaction assessment, ground improvement by preloading and stone columns, pile foundation design and site-specific seismicity using 'SHAKE.'

- **Seismic Retrofit of Highway Bridges, Los Angeles County, California**
  *Project Manager* for geotechnical and seismicity evaluations for the seismic retrofit of 16 Caltrans bridges on the I-10, 210 and 101 freeways. Conducted site-specific seismic hazard evaluations and provided foundation recommendations.

- **Dos Pueblos Earthfill Dam, Santa Barbara, California**
  *Project Manager* for the seismic retrofit of the 80-foot high Dos Pueblos Earthfill Dam in Santa Barbara, coordinated field exploration, dynamic laboratory testing, and seismic stability analyses. Performed dynamic response analysis to obtain earthquake induced stresses and accelerations within the dam, evaluated liquefaction potential and carried out deformation analyses

- **Pumped Storage Energy Tunnel**
  As *Project Engineer*, conducted a feasibility study for a pumped storage energy project including two proposed earthfill dam embankments, a 2,800 foot-vertical shaft, and 8,000 foot-long tunnel. Provided preliminary design of the dam profiles using onsite rock material and offsite clay for the dam core.

- **Lower Dam, Ventura County**
  Performed seismic stability analyses and evaluated earthquake induced deformations for the earthfill Lower Dam in Ventura, California, located in close proximity to the San Andreas Fault.

### Publications


- **Somasundaram, S.., Khilnani, K, Shenthan, T, and Irvine, J, 2013, "Characterization and Settlement Modeling of Deep Inert Debris Fills", Proceedings, 18th International Conference on Soil Mechanics and Geotechnical Engineering, Paris 2013**

- **Somasundaram, S., Shenthan, T.D. Stark, and T.D. Wright, S, 2012, "Shear Strength Characterization and Back Analysis for a Progressive Landslide", Proceedings, Geocongress, 2012, ASCE, Oakland, California**

- **Somasundaram, S., Shenthan, T, Benson, C, and Nannapaneni, S, 2010, "Unsaturated Hydraulic Characteristics of Soil with Significant Oversize Particles", Proceedings, 5th International Conference on Unsaturated Soils, Barcelona, Spain, September 2010**

- **Somasundaram, S., and Anathanathan, J., 2007. "Self Sustaining Earth Covers for Waste Disposal Facilities in Arid and Semi Arid Climates", Proceedings, Sri Lankan Geotechnical Society, International Conference on Soil and Rock Engineering, Colombo, Sri Lanka, August 2007**

- **Somasundaram, S., LaFountain, L., and Anathanathan, J., 2005. "Performance Monitoring and Model Verification for an Alternative Evapotranspirative Cover", Proceedings, ASCE Geo-Frontiers Conference, Austin, Texas, January 2005.**

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- Zornberg, J.G., Somasundaram, S., and LaFountain, L., 2001, "Design of Geosynthetic – Reinforced Veneer Slopes", Proceedings, International Symposium on Earth Reinforcement, Fukuoka, Japan, A.A. Balkema, 14-16 November, Tokyo, Vol. 1, pp 305-310
- Somasundaram, S., Caldwell, J., Loan, A., and LaFountain, L., 1999. "Design and Construction of an Evapotranspirative Cover at the OII Landfill," Proceedings, 4th Annual SWANA Symposium, June 1999.
- Somasundaram, S., Weeratunga, G., and Khilnani, K., 1998. "Ground Improvement at the Queensway Bay Downtown Harbor, Long Beach, California", Proceedings, 4th International Conference on Case Histories in Geotechnical Engineering, St. Louis, Missouri, March 9-12, 1998.
- Somasundaram, S., Weeratunga, G., and Best, J., 1997, "Ground Improvement at the Long Beach Aquarium of the Pacific - A Case Study", Proceedings, American Society of Civil Engineers, Geologan '97, Logan, Utah, July 15-19, 1997.
- Somasundaram, S., Khilnani, K.S., and Martin, G., 1992, "Performance History and Seismic Retrofit Analysis of a Homogeneous Earthfill Dam." Proceedings, ASCE Specialty Conference on Stability of Slopes and Embankments, Berkeley, July 1992.
- Somasundaram, S. and Khilnani, K., 1991. "Stability of High Refuse Slopes on Synthetic Lining Systems", presented at Geosynthetic '91 North American Regional Conference, February 1991.
- Casey J., P. Guptil, and S. Somasundaram, 1990. "Geotechnical Investigation of Reactivated, Ancient Landslide Terrain, and its Implications to Proposed Highway Development in San Francisquito Canyon, California." Proceedings of the 1990 Annual Symposium on Engineering Geology and Geotechnical Engineering, No. 26.
- Somasundaram, S., and C.S. Desai, 1988. "Modeling and Testing for Anisotropic Behavior of Soils," Journal of Engineering Mechanics Division, ASCE, Vol. 114, No. 9.
- Frantziskonis, G., C.S. Desai, and S. Somasundaram, 1986. "Constitutive Model for Nonassociative Behavior," Journal of the Engineering Mechanics Division, ASCE, Vol. 9, No. 6.
- Desai, C.S., S. Somasundaram, and G. Frantziskonis, 1986. "A Hierarchical Approach to Constitutive Modeling of Geologic Materials," International Journal of Numerical and Analytical Methods in Geomechanics, Vol. 10, No. 3.
- Desai, C.S., T.G. Lightner, and S. Somasundaram, 1983. "A Numerical Procedure for Three Dimensional Transient Free Surface Seepage", Advances in Water Resources, Vol. 6.