JULIO C. VELA, PH.D., PE, PRINCIPAL geotechnical engineer

Education

Ph.D., Civil Engineering, Washington State University, 2000
M.S., Civil Engineering, Washington State University, 1994
B.S., Civil Engineering, Washington State University, 1992

Registrations/Certifications

Professional Engineer: Washington (36720), Oregon (60333), Nevada (16694), Idaho (20049)
Geotechnical Engineer: Oregon (60333)
BNSF Contractor Orientation with Roadway Worker Protection e-Railsafe Compliance

Affiliations

American Society of Civil Engineers
Earthquake Engineering Research Institute
Seismological Society of America
American Public Works Association

Society for American Military Engineers

American Civil Engineering Council

Previous Employment

GeoEngineers Inc., Principal Geotechnical Engineer, Salem, OR, 2015-Present
GeoDesign, Senior Geotechnical Engineer, Portland, OR, 2004-2015
Landau Associates Inc., Senior Geotechnical Engineer, Portland, OR, 2001-2004
GeoEngineers Inc., Project Geotechnical Engineer, Portland, OR, 1996-2001
Washington State University Department of Civil and Environmental Engineering, Research Assistant, Pullman, WA, 1992-1996
O&T Irrigation, Systems Inspector and Remote Sensing Imaging Assistant, Moses Lake, WA, 1992-1996
Washington State University, Technical Assistant I, Pullman, WA, 1991-1992

Expertise

Julio brings over 25 years of experience in geotechnical engineering design. He has provided geotechnical design recommendations, earthworks specifications, and construction monitoring for public work infrastructure (such as pump stations, sewer and water reclamation facilities) high-rise structures, industrial buildings, office buildings, medium to large commercial developments, transportation structures, and other facilities. He has also conducted seismic research on a highway structure to evaluate hazards associated with earthquake events, in coordination with the National Science Foundation and state departments of transportation. His professional expertise includes infrastructure improvement projects such as city lift and pump stations, reservoir supply line realignment projects, and dam safety and rehabilitation studies. Julio also has extensive experience with retaining wall design and construction cost estimating, and foundation systems for heavily loaded structures and moderately loaded structures on sites with difficult support conditions.

Projects

**Port of Tillamook Bay (POTB), Oregon Improvement Projects; Tillamook, OR.** Julio was Project Manager for geotechnical design recommendations for multiple renovation and construction projects and infrastructure improvements completed at POTB as part of a $47M FEMA funded project for port improvements. Geotechnical issues at the site included recycling demolished construction debris as fill including concrete and existing pavement and gravel roadways, and cuts and fills across parcels partially improved during Port construction during World War II.

**City of Independence, Oregon Concrete & Gravel Facility Site Reclamation; Independence, OR.** Principal-in-Charge for geotechnical investigations and design recommendations for a proposed reclamation at a former concrete and gravel company site. Explorations encountered variable fills across the site including native soils, rounded gravels, and processed concrete debris. Buried tunnels were also present on site. Recommendations included areas where deep foundations would be required and surcharge recommendations for heavier floor loads, and recommendations for processing demolition debris that might be encountered for use as site fill. The site was graded and prepared for future development.

**City of Salem, New Fire Stations and Structural Upgrades to Existing Facilities; Salem, OR.** Principal-in-Charge overseeing geotechnical recommendations for structural upgrades to the existing facilities. The scope of work for each facility included a subsurface exploration program and laboratory analysis of soil samples. Julio’s team provided recommendations for site preparation, deep foundation design (if necessary), lateral earth pressures for design of walls below grade, slope stability assessments, and seismic design criteria.

**Oregon Military Department, Joint Forces HQ Facility; Salem, OR.** Julio was Principal-in-Charge for this project to provide geotechnical engineering services to support the development of a new facility for the Oregon Military Department in Salem, Oregon. Initial work included evaluating soil and groundwater conditions by reviewing preliminary information, conducting field investigations, exploring subsurface conditions, and laboratory testing. GeoEngineers provided geotechnical engineering design recommendations and a site-specific seismic hazard evaluation.

**Oregon Graduate Institute, Apartment/Parking Garage Development; Hillsboro, OR.** Julio was the Geotechnical Engineering Principal-in-Charge for a project that included demolition of 6 to 8 existing buildings at the former Oregon Graduate Institute campus for site development to include four apartment buildings with partial below-grade parking. Project recommendations considered re-use of demolished and processed material for use as fill on site and preparation of four separate construction project sites.

**IKEA, New Store; Renton, WA.** Julio was Principal-in-Charge for a project to provide geotechnical explorations and design recommendations for construction of a new IKEA store that included demolition of the existing store and parking structure on the project site to prepare the site for new store construction. Recommendations included ground improvement; deep foundations; re-use of on-site soils and recycled demolition materials for use as fill; tunnel wall and buoyant force tie-down recommendations; on-site stormwater detention and infiltration; and pervious pavement recommendations.

**Kuebler Cascade View Development; Salem, OR.** Julio was Principal-in-Charge for a project to provide geotechnical engineering services for the approximate 24.66-acre site development in Salem, Oregon. Eventual site development will likely include site grading to create relatively level building sites and will likely require site cuts on the order of 15 to 18 feet and site fills of 8 to 10 feet. GeoEngineers’ work included evaluating soil and groundwater conditions by reviewing preliminary information, conducting field investigations, exploring subsurface conditions, and laboratory testing. GeoEngineers also provided a geological assessment and recommendations for geotechnical engineering design, site preparation, earthwork construction, temporary excavation requirements, seismic design parameters, and asphaltic concrete pavements construction.

**Kalyan Hospitality, Hillsboro Home2Suites; Hillsboro, OR.** Julio was Principal-in-Charge providing geotechnical engineering services for a proposed hotel development in Hillsboro, Oregon. Work included evaluating soil and groundwater conditions by reviewing preliminary information, conducting field investigations, exploring subsurface conditions, and laboratory testing. GeoEngineers provided geotechnical engineering design recommendations, seismic design parameters and recommendations for constructing asphaltic concrete pavements.

**City of Independence, Recycled Water Facility and Pump Station; Independence, OR.** Julio was the Principal Geotechnical Engineer supporting the City on the design of a proposed recycled water facility, proposed pump station and associated piping. New pipe installation was to be included along existing dikes adjacent to the pond and pond infrastructure. To minimize impact on the existing dike, hand augered borings were conducted within the dike and in areas adjacent to the pond and used a trailer-mounted low-impact drill rig near the base of the dike.

**City of Dayton, Pump Station and Yamhill River Crossing HDD Design; Dayton, OR.** Julio was Principal Geotechnical Engineer for a geotechnical site investigation for the City’s proposed pump station replacement facility new sewer and water line Yamhill River crossings. GeoEngineers evaluated soil and groundwater conditions as a basis for developing geotechnical design criteria. The geotechnical design recommendations included for foundation and site preparation, earthwork, shoring design and base stabilization, and seismic design parameters.

**Oregon State Police (OSP), New Facility; Salem, OR.** Principal-in-Charge for the geotechnical engineering design services and site preparation for the new custom headquarters facility. The project consolidated OSP operations to an 11-acre campus half mile east of I-5 with three buildings totaling 120,000 square-feet and 400 parking spaces. Design elements included site-specific seismic hazard evaluation, geologic evaluation of adjacent sensitive slopes, shallow groundwater conditions, access concerns for land-locked property to the north, and concerns with an adjacent creek. The site was prepared for wet-weather construction prior to building construction to facilitate the required schedule for occupancy. Project construction encountered shallow gravels and clays and retaining walls for road widening.

**City of Salem and Oregon Department of Transportation (ODOT) Minto Island Bicycle and Pedestrian Bridge; Salem, OR.** Julio was Principal-in-Charge of geotechnical services for this proposed bicycle and pedestrian bridge over the Willamette Slough. The scope included bridge foundation design and a geophysical survey to evaluate areas of suspected poorly consolidated or poorly sorted fill, as well as a limited hazardous materials corridor assessment, environmental soil and groundwater characterization, and a contaminated media management plan. The combination of geotechnical and environmental explorations helped to reduce project costs and provided a basis for material handling and foundation selection. The project area has a complicated history of industrial use, which required sensitive sampling methods and careful consideration of the impacts of on-site fill and potentially contaminated materials.

**City of Salem, Forest Hills Waterline Project; Salem, OR.** Julio was Principal Geotechnical Engineer for subsurface explorations, including soil sampling, groundwater level evaluation, and laboratory testing for the City’s proposed waterline. GeoEngineers coordinated with the City to obtain work permits for rights-of-way for drilling and contacted locaters and flaggers to ensure a safe working environment during explorations.

**City of Salem, Minto Island Waterline Project; Salem, OR.** Julio was Principal Geotechnical Engineer for the geotechnical data report for a proposed waterline auger bore railroad crossing. GeoEngineers evaluated subsurface conditions near the two ends of the proposed auger bore crossing. The City and contractor used multiple installation methods, including open trench excavation and auger bore. Auger bore design services included jacking force, lubrication requirements and settlement considerations.

**Micro-Apartment Developments; Portland, OR.** Geotechnical Principal-in-Charge and Project Manager on three micro-apartment developments that included site investigations and geotechnical design recommendations and construction observation during project development. The projects included demolition of existing structures and development of residential facilities with commercial space at the base floor on small parcels in tight urban environments. Project challenges included controlled demolition at the site and coordinated construction on prepared pads after demolition.

**Oregon Youth Authority, MacLaren Youth Correctional Facility Pump Station; Woodburn, OR.** Principal Geotechnical Engineer for a geotechnical site investigation at the new pump station project. GeoEngineers provided geotechnical engineering recommendations for foundation and site preparation, shoring design and base stabilization issues for a 20-foot diameter, 27-foot-deep pump station facility, including dewatering issues.

**City of McMinnville, Ford Street Sidewalk Improvement; McMinnville, OR.** Julio was Principal-in-Charge of this geotechnical investigation of proposed sidewalk improvements for the Ford Street Sidewalk. The project includes adding sidewalk to the west side of the street and the existing sidewalk south of Cozine Creek. The purpose of the investigation was to identify embankment or wall options to support the sidewalk widening. GeoEngineers provided recommendations on fill placement, cuts to the existing slope, areas where retaining wall support is needed, and options for retaining wall types.

**City of Salem, Mission Street & Clarmount Street Pavement Services; Salem, OR.** Julio was Principal-in-Charge overseeing pavement design services for Mission Street SE and Clarmount Street NW. GeoEngineers evaluated the condition of the existing pavement and provided design recommendations based on reviewing existing information, visual assessments, FWD testing, subsurface explorations, laboratory testing and engineering analyses. GeoEngineers’ geotechnical engineering evaluation included recommendations for site preparation, including recommendations for undocumented fill and unsuitable native soils and constraints for wet weather construction; earthwork; asphalt rehabilitation alternatives; and asphalt design for 15- and 20-year life span.

**City of Salem, West Salem Transportation Feasibility Study; Salem, OR.** Julio was Principal-in-Charge overseeing the geotechnical feasibility study for the proposed 2nd Street NW Improvements in West Salem, Oregon to establish the project’s feasibility and identify potential design or construction hazards for the site. The feasibility study included completing a review of the existing geotechnical data and reporting on the areas geotechnical and geologic conditions. GeoEngineers’ feasibility report included an assessment of the site’s suitability for the proposed project and conclusions regarding the site’s groundwater and soil conditions, geologic hazards, and preliminary foundation recommendations.

**City of Lincoln City, Three City Roadways Preliminary Geotechnical Study; Lincoln City, OR.** Julio was the Principal-in-Charge providing initial observations and recommendations for geotechnical and geological observation/investigations for three City roadway projects. The purpose of the preliminary study was to observe areas where recent soil movement and pavement distress was recently reported to or observed by the City. Initial observations included slope movement and roadway distress, and GeoEngineers provided recommendations for further targeted evaluations to develop potential mitigation options.

**City of Lincoln City, Lee Avenue Pump Station Upgrades; Lincoln City, OR.** Julio was Principal-in-Charge overseeing the geotechnical engineering services for a pump station upgrade related to the SE Lee Avenue reservoir improvements. GeoEngineers completed subsurface explorations and evaluated soil and groundwater conditions to develop geotechnical design and seismic hazard design recommendations for a new building that will house reservoir facility equipment. GeoEngineers completed a subsurface investigation and laboratory testing, conducted the engineering analysis, and developed recommendations for earthwork, temporary excavation, shallow foundations and on-grade slabs, pavement, and site-specific seismic design parameters based on ASCE 7-16 requirements for critical facilities based on fire-line supply.

**St. Paul School District 45, Capital Bond Improvements Projects 2015, St. Paul Elementary and High Schools; St. Paul, OR.** Julio was the Project Principal managing the evaluation of soil and groundwater conditions to support the improvements at the elementary school and high school. This evaluation provided a basis for developing geotechnical engineering design recommendations and conducting site-specific seismic hazard evaluation for the proposed projects. Geotechnical services for both sites included pavement recommendations, subsurface characterization, foundation recommendations, and a site-specific seismic hazard evaluation for the facility improvements.

**Oregon Youth Authority, Rogue Valley Youth Correctional Facility Classroom Additions; Grants Pass, OR.** Julio was the Project Principal managing the geotechnical engineering design services for the proposed construction of a 1-story vocational classroom, administrative building, pedestrian and automobile pathways, and athletic field area. The evaluation provided a basis for developing geotechnical engineering design recommendations and conducting site-specific seismic hazard evaluation. Geotechnical services for the project included a subsurface characterization, recommendations for site preparations, earthwork construction recommendations, foundation recommendations, seismic design parameters on-site infiltration testing and pavement recommendations.

**Astoria School District 1C, Astoria Middle School; Astoria, OR**. Julio was the Project Principal managing the evaluation of a sinkhole/depression near the Astoria Middle School. An initial assessment of the sinkhole/depression and its effects on the existing building was conducted. Further support included reviewing current site conditions, available design and construction information, and as-built drawings from a geotechnical engineering perspective. The review was used to help determine potential causative issues and discuss potential solutions to the displaced soil and the distressed structural elements observed by building occupants.

**Willamette Education Service District (WESD), Marion Center Remodel Modernization; Salem, OR.** Julio was the Principal-in-Charge managing geotechnical engineering design services for this office facility modernization. WESD is a student-centered organization serving 21 Oregon school districts with a student population of more than 82,000 K-12 students. Geotechnical services included pavement recommendations, on-site infiltration testing, subsurface characterization, foundation recommendations, and a site-specific seismic hazard evaluation for the facility improvements.

**Willamette University, Atkinson Graduate School of Management (GSM), Seeley G. Mudd Building; Salem, OR.** Julio was the Principal Engineer for the geotechnical engineering services for the upgrade of the existing academic building housing the Atkinson GSM. Constructed in the 1970s, the building experienced apparent foundation settlement that caused structural distress. GeoEngineers’ scope involved exploring subsurface conditions surrounding, and inside of, the building to determine if settlement of the soil underlying the building contributed to the damage.

**Willamette University, Ford Hall; Salem, OR.** Principal Engineer for the geotechnical engineering evaluation of the proposed Ford Hall. Now complete, this new academic building houses high technology classrooms and office spaces and achieved LEED® Gold certification. The project included developing site-specific geotechnical recommendations for the development of the proposed facility, including information relating to foundation design, pavements, earthwork, utilities, drainage, and site-specific seismic hazard parameters. Project challenges included worked around the University’s schedule to minimize impact on student activities; and providing input to value engineer the drainage system and elevator pit.

**City of Salem, Airport Landfill Closure; Salem, OR.** Julio managed geotechnical engineering services in support of the proposed closure of the Airport Disposal Site and potential future development at the disposal site at the City’s Municipal Airport (McNary Field). The 8-acre disposal site is currently operated by the City as an inert materials disposal site under the Oregon Department of Environmental Quality. The City was considering reconfiguring two on-site disposal cells to accommodate potential runway or taxiway extensions and areas where airport hangar and small office structures can be developed. GeoEngineers conducted field explorations consisting of test pits and drilled borings to characterize the in-place fill and establish in-place fill depths. Depending on the type of proposed improvements, site development recommendations included preload and surcharge recommendations; lightly loaded or settlement tolerant structures with spread foundations constructed over granular support pads; intermediate-depth ground improvement for moderate structural loads; and excavation during grading and surcharge to create reinforced, compacted mat sections suitable to support future airport runway or taxiway structures. GeoEngineers continues to work with the City to determine the best suited support option or combination of options depending on the final proposed site use.

Publications

Vela, J.C., 2000, Theoretical modeling and field instrumentation of an earth retention system for seismic response: Thesis (Ph.D.), Washington State University, 231 p.

Jenson, J.W., Clark, P.U., MacAyeal, D.R., Ho, C.L., and Vela, J.C.,1995, Numerical modeling of advective transport of saturated deforming sediment beneath the Lake Michigan Lobe, Laurentide Ice Sheet: Geomorphology, v. 14, p. 157 166.

Jenson, J.W., MacAyeal, D.R., Clark, P.U., Ho, C.L., and Vela, J.C., 1996, Numerical modeling of subglacial sediment deformation: implications for the behavior of the Lake Michigan Lobe, Laurentide Ice Sheet: Journal of Geophysical Research, v. 101, p. 8717-8728.

Ho, C.L., Vela, J.C., Jenson, J.W., and Clark, P.U., 1996, Evaluation of long-term time rate parameters of subglacial till, Measuring and Modeling Time Dependent Soil Behavior, ASCE Geotechnical Special Publication No. 61, p. 122 136.

Vela, J.C., Jenson, J.W., Ho, C.L., and Clark, P.U., 1996, Long term deformation of a clayey sandy silt till in simple shear between yield and failure strength: Some implications for ice sheet behavior, Eos Trans. AGU, 77(46), Fall Meet. Suppl., H 72D 10.

Vela, J.C., 1994, Rheological testing of subglacial fill material Thesis (M.S.), Washington State University, 189 p.