

# JULIUS STRID, PE

P.O. Box 416  
Winlock WA 98596  
360-880-8804  
<http://jstridpe.com>  
[julius10@mac.com](mailto:julius10@mac.com)

---

## Education:

B.S., Mining Engineering, South Dakota School of Mines, 1980

## Registration:

Registered Engineer Washington State, Past registrations Oregon and Arizona

## Affiliations/Certifications:

Member, American Society of Mining Engineers (AIME/SME)

Member, American Society of Civil Engineers (ASCE)

## Publications:

“Setting the Owner’s Budget – A Guideline”; P. Gribbon, J. Strid, NAT Portland, June 2010.

“Risk Management to Make Informed Contingency-Based CIP Decisions”; P. Gribbon, G. Colzani, C. Overby, J. Strid. NAT Portland, June 2010.

“Portland, Oregon’s Alternative Contract Approach – A Final Summary”; P. Gribbon, G. Colzani, J. Strid, J. McDonald, RETC Toronto, June 2007.

“Tunneling at Hollywood Reservoir”; G. Colzani, J. Strid, S. Cole, D. Olsen, RETC, San Diego, June 2001.

“Construction of the Hollywood Water Quality Improvement Project”; J. Strid, S. Cole, R. Harasick, E. Hartman, G. Colzani, R. Miller, North American Tunneling 2000, Boston.

“Overcoming Difficult Ground Conditions in San Francisco – The Richmond Transport Tunnel San Francisco County, California”; S. Klein, M. Kobler, J. Strid, Engineering Geology Practice in Northern California 2001.

“Keys to Successful Construction Management in Underground Engineering”, G. Sherry, R. Henn, J. Strid, North American Tunneling, 1996 Balkema, Rotterdam

“Richmond Transport [San Francisco]”; J. Strid, M. Kobler, S. Maiolini, World Tunneling, London, March 1995, pp. N5-N8.

# JULIUS STRID, PE

## **Years of Experience: 32**

Julius Strid has over 30 years of practical on-site experience in heavy construction for tunnels, dams, mining, and airport construction. His extensive tunnel experience includes both soft and hard ground tunneling using shields, tunnel boring machines, drill and blast, and conventional hand mining. Julius Strid has been involved with dispute resolution, primarily through problem solving at project level, but also as an expert witness, project DRBs, and negotiations of changes.

## **Julius M. Strid, P.E. - Consultant**

Expert Witness - Expert review and testimony of damages portion of claim on the Brightwater Tunnel, King County, Seattle, WA.

Warranty Work - Construction Manager for repair of flex couplings on the Swan Island Pump Station, City of Portland, Bureau of Environmental Services.

Quality Assurance - New Irvington Tunnel, San Francisco PUC.

## **Willamette River CSO Tunnel Program \$1.4 billion:**

### **Swan Island Pump Station Phase 2 \$9 million, 2009-2011**

Construction Manager: This is the second phase of construction for the very large 210 MGD underground Swan Island Pump Station. Phase 2 consisted of installing 3 large pumps, motors, VFDs, and the associated piping, and mechanical and electrical equipment necessary to complete the pump station. The shaft and first phase pumps were completed previously as part of the West Side CSO Tunnel. As the construction manager, supervised the QA system for the owner including coordination of inspection for certified welding of steel piping at the fabricators, shored excavation, installation of the piping and valves, structural pipe supports, structural steel, mechanical systems, electrical system, instrumentation and controls.

### **ESCSO Tunnel, Portland, OR, \$450 million, 2005-2011**

Project Estimator/Project Controls Manager: Responsibilities are similar to those for the WSCSO, see below. The project used the same contract model, Cost-Reimbursable-Fixed-Fee as done for the WSCSO. This is a unique alternate contract method suitable for high-risk construction projects which successfully eliminated all claims and disputes for both projects. The entire program was completed on-time and under-budget with no outstanding contractual issues and no claims.

The project contains 6 miles of 22-ft diameter sewage conveyance/storage tunnel and 6,000 linear feet of small diameter tunnels. The Eastside CSO tunnel tops the Westside CSO tunnel as the largest slurry boring machine excavated tunnel in North America. The project includes 7 large shafts and several very difficult connections to live sewers.

The pre-construction phase contract began in July 2005. The project was completed in December 2011.

# JULIUS STRID, PE

## WSCSO Tunnel, Portland, OR, \$300 million, 2001-2006

Project Estimator/Project Controls Manager: Responsible for estimating during the pre-construction phase for the City of Portland. Responsibilities during construction were management of the controls system for this cost-reimbursable-fixed-fee project. The City selected this style of contract due to the difficult nature of the ground conditions and potential risks. The contractor was selected by qualifications and the construction contract price was based upon and estimated reimbursable cost. As controls manager, confirmed actual work quantities with the inspectors and monitored the projects costs of the QA and QC system.

The project involves 18,000 linear feet of large diameter sewage conveyance/storage tunnel, 8,000 linear feet of small diameter tunnels, very large diameter shafts, appurtenant drop structures, gravity conduits, force mains, and a large wastewater pump station. Ground conditions were saturated alluvial soils next to the Willamette River. This is one of the most difficult soft ground tunnel projects ever attempted in North America and was the largest slurry boring machine excavated tunnel in North America at the time. The project includes 5 large shafts in saturated sands and gravels, including the 130-foot deep, 160-foot diameter pump station shaft housing the Swan Island Pump Station. The construction contract began in 2002 and was completed on time and on budget in 2006.

## **Port of Seattle, SeaTac Airport, SeaTac, WA, several projects \$5,000 to \$200,000 2001**

Construction Manager: Construction Manager for the Port Construction Services division of the Port of Seattle. This owner-run construction department is a part of the Port of Seattle that constructs small projects for the airport and marine port. The Construction Services division does about \$20 million in construction each year. Responsible for several projects associated with the \$6 billion expansion of the SeaTac Airport, including the US Airways Baggage Office and the South Security Gate reconstruction, which were a part of the South Terminal Expansion Project.

## **Hollywood Water Quality Improvement Project, Los Angeles, CA, \$ 110 million, 1998-2001**

Project Engineer: Performed construction management services for this \$110 million reservoir tank and tunnel project. Responsible for the construction management staff representing the Department of Water and Power, including all change order estimates for negotiations. This project is in the heart of urban Hollywood in a very environmentally sensitive area. The tanks are world-class size underground water storage tanks, 30 million gallons each. The tank excavation site was shored with an extensive system of soldier piles and tiebacks and a slurry wall. The total volume of excavations for the tanks was 1 million cubic yards. There are 6 tunnels on the project, the largest 10-foot diameter, 1 mile long, with a shaft and underground connection to an existing feeder tunnel. The ground conditions were Topanga Formation consisting of inter-bedded, faulted, and folded sandstones and shales and intrusive basalt. All of the tunnels were successfully driven using tunnel-boring machines, except for the hand-

# JULIUS STRID, PE

mined Weid connection tunnel and the storm drain tunnel. Responsible for the inspection team quality assurance including coordination of certified welding inspection of the 72-inc steel pipe, inspection of the manufacture and coating of the steel pipe at the fabricator, inspection of the tunnel excavation, installation of the shoring system, concrete structures, and installation of very large steel piping and valves.

## **Priest Reservoir Bypass Tunnel, Moccasin, CA, \$10 million, 1997**

Tunnel Engineer: Provided peer design review for a 2,500-linear foot hard rock drill and blast tunnel and three shafts for construction of a bypass on the Hetch Hetchy water supply system for the City and County of San Francisco. Responsibilities also included cost estimates and schedules preparations.

## **Thomas Shaft Sampling Wells, San Francisco, CA, \$1 million, 1997**

Tunnel Engineer: Responsible for the preparation of target cost and contract schedule. This project consisted of design for a sampling well tying into the Coast Range Tunnel to monitor water quality. This well was designed to be installed from the ground surface using state-of-the-art directional drilling methods to make a blind connection the tunnel. The depth to the tunnel crown is 300 feet through Franciscan Formation sandstones and shales.

## **Zoo Wet Weather Lift Station, San Francisco, CA, \$8 million, 1996-1997**

Resident Engineer: Responsible for inspection and contract administration of the pump station. This project contained a tunnel in saturated beach sands driven by dewatering, pipe jacking and the use of a TBM. The lift station was a large underground concrete structure containing 5 large submersible pumps. An above ground utility building was constructed to house the electrical and mechanical systems for the pumps.

## **Seacliff Slope Restoration and Sewer Repair, San Francisco, CA, \$6 million, 1997**

Resident Engineer: Managed the design and construction during emergency repair of a 100-year-old brick sewer. The work consisted of design and construction of an underground vortex drop shaft, deaeration structure and tie-in to the existing tunnel. The 50-foot deep excavation was supported using extensive soldier pile walls tied back at three levels. The \$6-million fast-track construction project was completed in three months during a tight schedule controlled by the need to complete the repair before the next wet weather season. Supervised the field inspection team during excavation, installation of fiber reinforced piping, reinforced concrete pipe, and a large underground concrete connection structure.

## **Richmond Transport Facilities, San Francisco, CA, \$33 million, 1994-1996**

Resident Engineer: Responsible for field and office engineering, project management, cost estimating and construction scheduling, processing of contractor submittals, change orders and contractor progress payments. Supervised the inspection team during construction of the cast-in-place concrete tunnel lining, connection structures, and piping systems.

# JULIUS STRID, PE

This project consisted of 10,200-feet of 14-foot diameter tunnel driven through hard rock, fill dune sands and Colma formation sands. The soft ground portion of the tunnel was mined using an open-faced digger shield, in conjunction with chemical and compaction grout to control surface settlement. The hard rock section utilized a fully shielded tunnel-boring machine to mine through brecciated shales, sandstone, serpentinite, chert, and gouge material. Drill and blast methods were used to mine 800-feet of 12-foot horseshoe incline and decline tunnel and an overflow chamber. Over 6,000 linear feet of 36-inch, 42-inch and 120-inch RCP sewer line were installed, along with concrete structures and weirs.

## **Lake Merced Transport, San Francisco, CA, \$22 million, 1993**

Project Engineer/Senior Inspector: Responsibilities included office engineering and inspection during the construction of 8,500 linear feet of 14-foot diameter tunnel in saturated beach and dune sands, Colma formation and Merced formation using an open-faced shield. Inspected the rebar installation and setting of forms for the cast-in-place concrete tunnel lining.

The project also included hand mining a 10-foot diameter; steel rib and spiling supported tunnel, construction of a transition structure, an overflow structure and an architectural building. Duties included processing submittals, change order estimates and progress payments, inspecting and reporting construction activities and monitoring of instrumentation and dewatering programs. Mr. Strid was responsible for inspection of final concrete lining. The concrete was batched on-site for all of the lining and structures. Also responsible for all closeout claims and change orders.

## **Consultant Engineer - Various Projects, 1990-1992 WA, FL, NV, AZ, WV**

Claim resolution, expert witness. Mine design Floridin Mine, Big Mike Mine. Surface Water runoff retention system, Superintendent conveyor system.

## **Mt. St. Helens Sediment Retention Dam, Toutle, WA, \$70 million, 1987-1989**

Project Engineer/Contract Administrator: Responsible for development of claims for differing site conditions, embankment engineer, grout plan and implementation, scheduling, progress payments, change orders, blasting engineer and structures engineer. This project was a \$70 million dam constructed for the Army Corps of Engineers to trap volcanic sediment from Mt. St. Helens. The dam is composed of 15 million cubic yards of silty clay impervious core and andesitic basalt rock embankment and 80,000 cubic yards of concrete outlet works.

## **Papago Storm Drain Tunnels, Phoenix, AZ, \$70 million, 1984-1987**

Assistant Resident Engineer: Provided construction administration, inspection and project engineering for three large tunnels ranging from 14-ft to 26-ft diameter. All were driven with shielded machines through soft ground composed of sands, gravels, and cobbles. Duties included construction management and contract administration for all phases of the project. This included developing computer documentation methods, coordination inspection, overseeing survey of control, incorporating change order

# JULIUS STRID, PE

estimates, value engineering, development of state of the art compaction grouting methods, analyzing claims, evaluation of geological conditions and interpreting geotechnical instrumentation data.

## **Engineer - Various Tunnel Projects, Rockville, MD, 1983-1984**

Tunnel Engineer: Worked on design and construction claims evaluation for several tunnels.

## **Three Rivers Water Quality Management Program, Atlanta, GA, \$30 million, 1982-1983**

Office Engineer: Responsible for office engineering duties and assisted in evaluation of contractor claims. This project entailed 6-miles of tunnels and 2,000-feet of large diameter pipeline. The tunnel was 10-feet in diameter with the majority driven through hard rock with a TBM. A 2-mile portion was mixed face and mined using drill and blast methods.

## **Antelope Valley Raw Water Intake Tunnel and Shafts, Beulah, ND, \$15 million, 1980-1982**

Office Engineer: Responsible for all office engineering duties during change of contractors for this lake-tap tunnel and shafts project. The shafts were 300-feet deep, the off-shore shaft was constructed in 70-feet of water. The on-shore shaft included a large 100-foot deep caisson and, at the time, the world's largest auger bored shaft (12 ft diameter). The 3,000 linear feet of single-pass segmental concrete lined tunnel was constructed in soft ground using a fully shielded TBM.