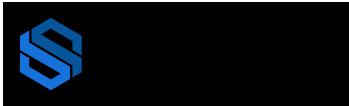


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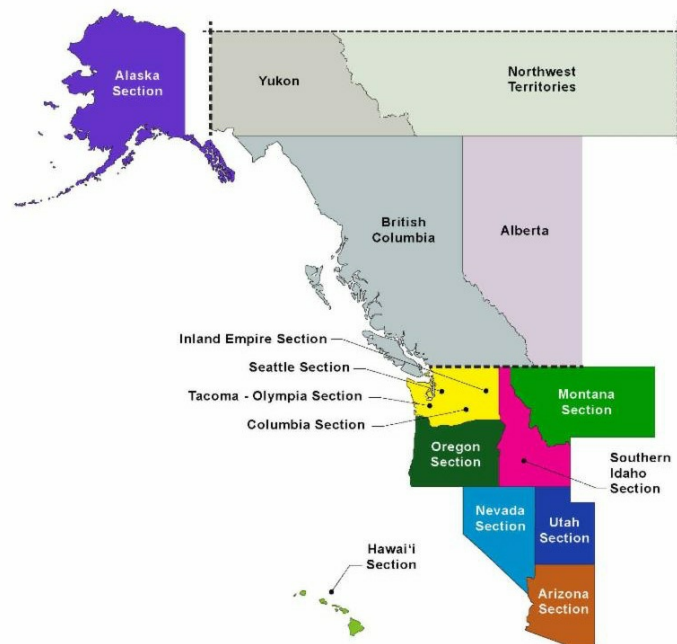
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"Help you matter more and enable you to make a bigger difference"

MESSAGE FROM THE REGION 8 DIRECTOR



Before I was elected Society Director for Region 8, I had served on the Society's History & Heritage Committee for a couple of years. I greatly respect the work of this committee, which is dedicated to maintaining and advancing the Society's National Historic Civil Engineering Landmark (NHCEL) program and other programs that honor the works of our civil engineering predecessors.

When I was on the H & H committee, I became aware of a project that was literally in the backyard of my old home town of San Mateo California: Lower Crystal Springs Dam, which was constructed in 1886-89 to supply water for the rapidly-growing city of San Francisco, and which is still in use today. Upon research, I discovered

that it is the oldest mass concrete dam in the United States, and the largest concrete structure built in the U.S. during the 19th century. The dam had been honored by the San Francisco Section many years ago as a section historic landmark, but they had never taken on the project of applying for the much more prestigious ASCE National Historic Civil Engineering Landmark designation. After I became aware of this, I resolved to take on the preparation of a NHCEL application for the project, but my plans were sidetracked when I assumed my current role as Region 8 Director, and I had to assume non-voting Corresponding Member status on the H & H Committee.

Over the course of the last few months, I have been able to finally make some time to take on the responsibility of preparing the NHCEL application, which is an arduous process. The first step was to line up support for the project from the San Francisco Section and the dam's current owner, the San Francisco Public Utilities Commission. Getting section approval was straightforward but getting the SFPUC to sign on to the effort required time and some tactful negotiation. The SFPUC thought the NHCEL designation was potentially a valuable thing, since it clearly demonstrated their effective stewardship of the project for over 130 years, which still stores over 17 billion gallons of water, but SFPUC management had to first satisfy themselves that allowing the dam to be so designated by ASCE would not in any way encumber their continuing and future use of the dam. Once they had satisfied themselves that ASCE's NHCEL status would not in any way interfere with current or future operation of the dam and reservoir, they enthusiastically provided a letter of support for the NHCEL designation.

As I've worked on researching the Lower Crystal Springs Dam for the NHCEL application, I've come to greatly respect and admire the work of the engineer responsible for it: Hermann Schussler. Schussler graduated from Karlsruhe Polytechnic School in Germany in 1864 and immigrated to San Francisco later that year. The young engineer (who spoke little English when he first arrived) soon found work with the Spring Valley Water Company, which was the water purveyor for the city of San Francisco until the company was purchased by the city in 1930. Schussler's early work for Spring Valley consisted of constructing a series of fairly small reservoirs in the foothills behind San Mateo. While these projects performed well, and allowed Schussler's reputation to flourish, leading to his appointment as Spring Valley's chief engineer (a post he held until his retirement in 1919), they were too small to meet the water needs of the rapidly growing city. He eventually set his sights on building a large dam and reservoir on San Mateo Creek to finally provide an adequate water supply for the city.



Built in 1886-89, Lower Crystal Springs Dam is still in use today (Photo credit: SFPUC)

Schussler wanted to build his new dam using stone masonry blocks, which was standard practice in the 1880s, but a lack of a convenient source of competent stone made him decide to use a then fairly-new product: concrete. Although concrete technology had been around since Roman times, by the 1880s, there was still no large-scale source of Portland cement available in the United States. This forced Schussler to turn to the world's leading cement exporter of the time: Portland, England. Schusler's Portland cement was placed in water-tight barrels and shipped over 16,000 miles by sailing ships to San Francisco and on to the job site. Although Spring Valley's business records were destroyed in the great San Francisco 1906 earthquake and fire, the dam's plans survived since they were stored outside the city. SFPUC's historian, Mike Housh, rediscovered some of these original plans, had them digitally scanned, and made them available to me for the NHCEL application process. The plans show a number of critical innovations that Schussler incorporated for the first time into the design and construction of the dam:

- The first recorded use of on-site crushing and washing of aggregate for the concrete.
- The first use of steam-powered concrete mixing equipment of Schussler's own design.
- Constructing the dam in a series of inter-locking thin concrete blocks that provided a measure of flexibility without sacrificing water-tight integrity.
- Requiring workers to cover all fresh concrete pours with wet burlap to reduce exothermic heat build up and thereby prevent concrete cracking.

- Specifying that workers clean all adjacent concrete surfaces to remove all laitance and zones of weakness before the next pour.

A measure of how well all of these innovations have stood up over the years was that the dam survived both the 1906 and 1989 Loma Prieta earthquakes without any appreciable damage. This despite the fact that the San Andreas Fault is only 1100 feet west of the dam site – a fact that wasn't recognized until several years after the dam was constructed.

Without Lower Crystal Springs Dam and the water supply it provides, San Francisco could not have ever grown into the world-class city it is today. What a tribute the dam is to its designer and constructor (and ASCE member) Hermann Schussler! I'm looking forward to attending ASCE's NHCEL plaque dedication ceremony for Lower Crystal Springs Dam in a few months!

Larry Magura
Society Director, ASCE Region 8
Corresponding Member, ASCE History & Heritage Committee

REGION 8 GROUP SPOTLIGHT: HAWAII SECTION YMF RECEIVES ASCE SOCIETY AWARD

Congratulations to the Hawaii Section Younger Member Forum (YMF) for receiving the **2023 ASCE Younger Member Group Award for Small Groups** for their outstanding professional, technical, social, outreach, and community service activities. The award will be presented, along with a \$500 cash prize, in person during the Society's Annual Convention in Chicago, IL, October 18-21, 2023.

The purpose of the award is to promote excellence among the Younger Member Groups of ASCE, which operate at the Section and Branch levels. Nomination deadline is February 1st. Nomination packages must be submitted through the Section or Branch Secretary as a single PDF emailed to Younger Member Programs at youngermember@asce.org.



Hawaii Section YMF

The mission of the Hawaii Section YMF is to advance civil engineering and to serve as a resource for young engineers and engineering students. The official age range is 35 years of age or younger, but everyone, who is young at heart, is welcome. In order to foster continued learning, development, and fellowship among the young civil engineers of Hawaii, Hawaii Section YMF organizes field trips to interesting civil engineering projects, community service projects, social/networking functions, and much more.



Hawaii Section YMF at a volunteer event

President - Brando Uejo, P.E., M.ASCE
ParEn, Inc., dba Park Engineering
president.ascehawaiiymf@gmail.com



Vice President - Lance Lam, E.I.T.
Brown & Caldwell
vicepresident.ascehawaiiymf@gmail.com



Treasurer - Rebecca Pitts
Coffman Engineers, Inc.
treasurer.ascehawaiiymf@gmail.com



Secretary - John Kim
Wilson Okamoto Corporation
secretary.ascehawaiiymf@gmail.com



Past President – Claire Fukuoka, P.E., M.
ASCE
Austin, Tsutsumi & Associates, Inc.
pastpresident.ascehawaiiymf@gmail.com



For more information on Hawaii Section YMF, please visit their website at:
<https://ascehawaiiymf.org/>

To contact the Hawaii Section YMF, please email: ymf.hawaii@gmail.com

For more information about the ASCE Younger Member Group Award, please click this link: <https://www.asce.org/career-growth/awards-and-honors/younger-member-group-award>

2023 REGION 8 AWARDS

Congratulations to the recipients of the 2023 Region 8 Awards. Recipients are invited to receive their respective awards in person at the Region 8 Fall Assembly in Helena, Montana, August 18-19, 2023.

ASCE Region 8 Awards seek to honor and recognize outstanding engineers and their projects each year. Nominations for these awards are due on April 1 each year.

For more information and nomination forms, please visit: <https://regions.asce.org/region8/awards>

**Dale Nelson Engineer of the Year –
Dr. Laura Spencer, Ph.D., P.E., M. ASCE**



Dr. Laura Spencer has over 18 years of experience in the geotechnical engineering profession and is the current president of the ASCE Arizona Section. She received her Master of Science and Doctorate in Geotechnical Engineering from Georgia Tech, with a Bachelor of Science in Civil Engineering from Carnegie Mellon University. Dr. Spencer currently works as a Technical Manager of Engineered Structures at

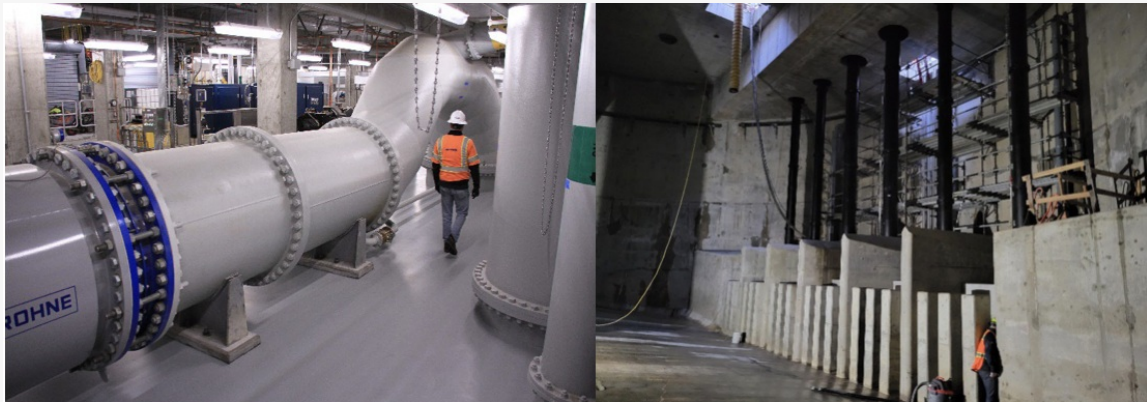
TenCate Geosynthetics, where she is responsible for the technical support of geotechnical engineers in the areas of earth retaining structures. Dr. Laura Spencer is a tremendously well-rounded engineer who is an indispensable member of the ASCE society and the profession as a whole in Arizona. She seamlessly fills many roles from technical guru on designs, project manager, team builder, external voice, community supporter, and great friend to all she meets in the local engineering community. She is a dedicated member of our profession, who is well-respected among her peers for her support and technical expertise.

**Kristina Swallow Young Engineer of the Year –
Carly Ann K. H. Kaneko, P.E., M. ASCE**



Carly Kaneko grew up in Aiea, Hawaii and has a total of 11 years of experience as a civil engineer in the private sector. She graduated with her Bachelor of Science in Civil Engineering from the University of Portland in 2011 and obtained her Master's in Business Administration from the University of Hawaii at Manoa in 2016. As a civil project manager at Austin, Tsutsumi & Associates, Inc., she works on a variety of projects ranging from site development, roadway, residential subdivision, and utility projects. She had the privilege of serving in various leadership roles for ASCE Hawaii Section Younger Member Forum, starting as their K-6 Outreach Committee Co-Chairperson, filling various committees for WRYMC 2019, and serving four years as an officer for the organization. Carly is also active in leadership roles with the American Water Works Association, Hawaii Section, and the American Council of Engineering Companies of Hawaii. Her favorite aspect of engineering is the opportunity we have to shape our communities through either projects or by supporting the community through professional organization and volunteer efforts.

Project of the Year Greater Than \$10 Million – Georgetown Wet Weather Treatment Station, Jacobs Engineering Group, Total Construction Cost: \$140 Million



This ENVISION Platinum project was collaboratively delivered with King County Wastewater Treatment Division (WTD) and the Jacobs team. The project team efforts began in 2014 and the facility reached its substantial completion milestone in late 2022. Through the hard work and innovation of Jacobs and their amazing team of subconsultant partners, the Georgetown Wet Weather Treatment Station (GWWTS) will contribute to the wellbeing of the citizens of Seattle and King County, and the broader Puget Sound region by treating wet weather storm discharges to meet regulatory requirements.

The GWWTS improves water quality to the Duwamish River and Puget Sound, helping to protect the environment and iconic Northwest species including salmon and orcas. The Jacobs team and their counterparts at WTD met the challenges of this project through a resourceful and comprehensive evaluation and planning phase to site the GWWTS in a historically disadvantaged industrial area of South Seattle. Jacobs and their team addressed complex siting, hydraulic, geotechnical and process engineering challenges while creating an iconic facility that provides community amenities and achieves King County's goals for sustainability and inclusion of the arts. Parts of this facility include materials salvaged from the immediate area and give nod to the neighborhood's culture and rich history of industrial innovation. The Jacobs team applied composite and recycled materials that met the City of Seattle's building code requirements for seismicity and enriched the aesthetics of the facility.

Project of the Year Less Than \$10 Million - US-20, I-15 Interim Ramp

Modifications, Horrocks, Total Construction Cost: \$2.1 Million



The US-20, I-15 Interim Ramp Modifications project included reconstructing the northbound I-15 off-ramp to US-20 in Idaho Falls, Idaho, to improve safety and mobility for motorists and pedestrians. The existing off-ramp had two lanes, a shared through- and left-turn lane, and a dedicated right-turn lane. This configuration, coupled with heavy traffic volumes, caused traffic to back up beyond the ramp and onto the I-15 driving lanes, creating potential hazards. The limited sight distance obscured the queued traffic from approaching drivers, increasing the potential for high-speed, rear-end crashes. Initially, signal timing at the intersection of the off-ramp and US-20 was adjusted to prioritize the traffic volume; however, this sacrificed the mobility of motorists on US-20 by causing longer delays. Horrocks successfully designed improvements to widen the ramp, adding a second right-turn lane that allowed more vehicles to enter the intersection. Along with the ramp widening, this project included replacing several other features of the intersection to improve operation and safety, including overhead guide signs to increase reflectivity and visibility. To further improve intersection operations and pedestrian safety, a separated pre-cast pedestrian tunnel was designed and placed under the off-ramp to reduce pedestrian exposure to vehicles.

Along with the ramp widening, this project replaced several other features of the intersection to improve operation and safety, including overhead guide signs to increase reflectivity and visibility and meet current standards per the Manual on Uniform Traffic Control Devices (MUTCD). Pavement markings were refreshed to provide better guidance to motorists. A substandard guardrail was replaced with a new guardrail at the proper height, and all narrow sidewalks were widened to be compliant with Americans with Disabilities Act (ADA).

Since completion, traffic queue lengths have significantly reduced and motorists rarely wait to proceed through the intersection. Proper signage and pavement markings have led to fewer last-minute lane changes, reducing the probability of sideswipe collisions. Pedestrian improvements also provide a safer route for bicycle and pedestrian traffic, bypassing the intersection entirely by traveling underneath I-15. The City of Idaho Falls provided the zeroscape landscaping design, which improved the context sensitivity and aesthetics of this area.

Additionally, Brigham Young University-Idaho partnered with ITD to allow engineering students the opportunity to work on the pedestrian pathway planning document for their senior design project. They presented their design to ITD, and the concept was taken through full engineering and construction. The students' sidewalk and pedestrian tunnel design was used in Horrocks' final design and constructed based on their concept. This project gave aspiring engineers the opportunity to participate in a real project and see the real-life application of engineering and how it benefits the community. Horrocks implemented the zeroscape landscaping designed by the City of Idaho Falls, which requires no watering, to reduce maintenance needs along the intersection and the pedestrian pathway, creating an economic and sustainable benefit for the community. This project created a temporary ramp configuration to improve the level of service for motorists and pedestrians through the intersection, providing ITD with additional life of the ramp until final plans can be implemented.

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They are headquartered in Anchorage,

AK, USA. Their **beadedcloud** software presents ground temperature monitoring insights, collecting data from our rugged digital temperature cables and direct-to-orbit data loggers.

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REGION 8 CALENDAR OF EVENTS

- August 18-19: Region 8 Fall Assembly, Helena, Montana
- October 19-21: ASCE National Convention, Chicago, Illinois

ASCE REGION 8 EVENTS



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