

The American Society of Civil Engineers

# Civil Engineering Alaska

The Quarterly Newsletter of the American Society of Civil Engineers Alaska Section



## Quarterly Highlights

- \* North Pole—Moose Creek Water Expansion Project
- \* Future Civil Engineer from University of Alaska
- \* Life Member Recognition
- \* Job Opportunities

## Seasons Change

As September rolls around, the leaves begin to change colors, the mornings are darker, and the air feels a bit crisper. This time of year always signals the end of summer, the beginning of fall, a season of change. ASCE and other professional societies during this time of year are typically gearing back up to offer fall meetings and presentations. We are reminded this year however, is different. The COVID-19 pandemic has affected our daily lives since February and appears to be the case through the rest of this year. As our branches transition back to offering programs and activities this fall, it will not come without its challenges. In order to keep ASCE members safe and comply with state and local regulations and social distancing guidance, our organization is faced with the challenge of offering

programming through digital and virtual means. ASCE at the national level provides 10 PDH's included with your membership and a plethora of virtual education, presentations, and conferences available at <https://collaborate.asce.org/covid-19/home>. Our local branches are currently working through the logistics and are working toward offering local virtual presentations.

September also marks the end of our Section and Branch board's terms. The branch boards, along with the support of our members, are responsible for all of the outstanding programs and activities that ASCE has been able to offer over the last year. I encourage you all to take a minute and make a phone call or send an email and thank those who have participated on your

local branch board. Also reach out to them and offer suggestions on how they can improve the branch's programs and activities for 2020-2021. Please offer to get involved with your local branch, offer to make a presentation, or volunteer during the next activity.

It has been a pleasure serving the Alaska Section Board this year, and although this year did not go as planned, we plan to continue offering our programs and activities for the 2020-2021 ASCE year, albeit modified given the current situation. I look forward to a better year to come.

## Stay Well,

David Gamez, PE, M.ASCE  
ASCE Alaska Section President—'19-'20

**Moose Creek Water Expansion Project—See Page 2**



# Infrastructure Spotlight

## Clean Water ASAP – the Moose Creek Water Expansion Project

North Pole, Alaska is best known around the world for its' charming community name-sake which matches another particular location that can be found much further north. In the state it resides in however, North Pole is best known for its adjacentness to a now reduced in scale petroleum refinery, the strategically important Eielson Air Force Base, and unfortunately, for ground water contamination issues from both of these locations.

In 2014, the first discovery of per- and polyfluoroalkyl substances (PFAS) was found in the ground water of the commu-

**In 2014, the first discovery of per- and polyfluoroalkyl substances (PFAS) was found in the ground water of the community of Moose Creek**

nity of Moose Creek, just outside of North Pole. The cause and origin of the contamination was determined to be from the nearby Eielson Air Force Base, where, like many airfields/airports, PFAS based foams have been used for firefighting and training for decades. The US Air Force quickly stepped in to evaluate options for supplying the community with safe drinking water, as the community had no mu-



Photo: PDC Engineers

nicipal water system and was served 100% by private wells. They investigated providing granular activated carbon (GAC) treatment units at each property, extending the water system from Eielson AFB, and extending the water system from the City of North Pole. Option three was selected and the City of North Pole hired PDC Engineers to conduct preliminary planning for the new water system expansion. (The Air Force is reimbursing the City of North Pole for the expansion at the cost of roughly \$35 million dollars.)

The project's scope involved estimating the water demands of Moose Creek (both now and for anticipated growth), evaluating and upgrading the City of North Pole's water system capacity, permit acquisitions, land status reviews, developing materials specifications, routing and design of a water transmission main from North Pole, routing and design of water distribution loops within Moose Creek, and service line rout-

ing and tie-ins at each structure within the community.

The City of North Pole pushed for an extremely quick turnaround of design and bid documents in 2019, going from concept to final submittal in one year. This was an especially daunting task, especially considering all the permitting agencies involved. The project went out to bid in December and was awarded to HC Contractors of North Pole in February of 2020.

The Moose Creek Water Expansion Project is currently in construction, and sits at nearly 50% completion with plans to continue into next summer. It has involved every discipline at PDC's disposal and has required the use of many subcontractors by HC. In short, the project wouldn't be possible without the herculean effort of everyone involved.

### Construction:

- ◆ All ductile iron mains and copper services – no HDPE
- ◆ All water and soil below the water table considered contaminated
- ◆ 18 miles of new water main Acquisition of property and over 30 easements
- ◆ Many oxbow, creek, railroad, and highway crossings using HDD and jack & bore methods
- ◆ Crossing of the Moose Creek Flood Control Project – to include up and over the dam
- ◆ Water service to all homes and businesses, to include hookup and removal of existing systems
- ◆ Decommissioning of over 200 wells Construction of a pumphouse and 410,000-gallon water storage tank in Moose Creek
- ◆ City of North Pole Water Treatment Plant upgrades and addition of a 6<sup>th</sup> greensand filter
- ◆ Upsizing the City's well pumps, controllers, transformer, and generator

### PROJECT QUICK FACTS

#### Permitting Agencies:

- United States Air Force
- United States Army Corps of Engineers
- United States Department of the Army
- Alaska Department of Fish and Game
- Alaska Department of Natural Resources
- Alaska Department of Environmental Conservation
- Alaska Department of Transportation & Public Facilities
- US Environmental Protection Agency
- Fairbanks North Slope Borough
- State of Alaska
- Alaska Railroad



Photo: PDC Engineers

# TEAMWORK

## Construction Year

2019—2020

### Owner

City of North Pole

### Designer

PDC Engineers

### Contractor

HC Contractors

# Student Member Spotlight

## Future Civil Engineer from the University of Alaska—Anchorage



**Name:** Shoshanna Johnson

**Age:** 29

**Grade:** Senior



**Hometown, State:** Fairbanks, AK

**Year you became a member of ASCE:** 2018

**Describe why you joined ASCE:** The biggest draw to ASCE was networking both within UAA's College of Engineering & out in the professional world. I've always been a big proponent of student clubs because they help students find a community and a place to belong in the little big world of College. Alaska is a small place, so is Anchorage, & the engineering community is even smaller. Our classmates are going to be our coworkers, superiors, subordinates, clients, colleagues, & friends. So, I figured it was a good idea to get to know everyone sooner, rather than later.

**Describe a little bit about yourself and why you chose Civil Engineering as a**

**major:** I started off at UAA majoring in Geomatics. I got a student job at the front desk of the CoEng's Advising Center which, at the time, was on the same floor of the CE department. So, I got to see all the undergrad & grad students talking with the Civil faculty about all their research projects. A few really piqued my interest, such as the harnessing of tidal energy in Cook Inlet with hydrokinetic turbines, and the use of LunarCrete. I thought to myself "Those are my people & I want to be a part of that kind of innovation!" So, I changed my major the following semester & here I am, today!

**Describe your involvement in the community:** I have previously been the program manager for the UAA CoEng Summer Engineering Academies, exposing the younger generation to engineering. Prior to that, I was an ambassador to the public for the Alaska Native cultures, educating curious minds about their languages, technologies, & ways of life. And, prior to that, I logged several hundred community service hours for various local causes as the Battalion Commander of Bartlett High School's JROTC Program.

**My favorite community/ASCE project was:** the AISC Student Steel Bridge Competition for the following reason: It was a phenomenal team-building exercise which allowed me to gain invaluable experience both collaborating with my classmates & learning to use the various tools & pro-

grams necessary to pull off such an incredible project! I hope to lead this year's team as well as the previous Steel Bridge Captains have. It will be different with the pandemic. But, we will adapt & overcome!

**I have set the following goals for myself for the next**

**1 year:** A year from now, I will have graduated with my BS in Civil Engineering, have passed my Fundamentals of Engineering exam (FE), and I hope to read for recreation (ahh, yesteryear, when textbooks weren't my entire life!), and to be able to finally keep a house plant alive for more than a month.

**5 years:** In five years, I would like to have earned my MS in Civil Engineering, have fully paid off my undergrad student loans, and completed a Spartan Sprint race.

**My high school physics teacher, Mr. Youngblood, inspired me to:** look at the universe from many different perspectives. He's the person who truly sparked my interest in the sciences, how things work, and to ask why they work that way. He genuinely cared about his students & was passionate about the subjects he taught. I had the chance to tell him so when he happened to be a part of a tour of UAA's Engineering & Industry Building in 2018. It was great to be able to thank him & let him know he's a big reason why I'm on the path to becoming a Civil Engineer.

**My favorite civil engineering course is, or has been (also describe why):** Statics because all the problems in Statics were all

fun little puzzles, & when it was solved it was so satisfying to see the result. It was even more satisfying when you double-checked them using a completely different method and get the same answer! This of course was very helpful in Structural Analysis, which was also fun!

**My favorite extra-curricular activity is, or has been (also describe why):** Soccer! I've been playing soccer since I was four, and while I'm not the world's best player, it's my favorite way to let loose!

**The most challenging thing I have ever experienced is (also describe why):** Ordinary Differential Equations, O.D.E., Diff.E.Q., et cetera... Y'all know why!

**My greatest accomplishment to date has been (also describe why):** My greatest accomplishment would have to be just pushing myself to improve. To persevere through all life's struggles & obstacles with a smile and to understand it's all just character building.

**My ideal 1st Job in Civil Engineering will be (also describe why):** My ideal first Civil Engineering job would be in a position where I am able to gain as much engineering experience as possible while serving the Anchorage & Alaskan communities by improving our infrastructure.



## Bristol



Bristol Engineering Services Company, LLC (Bristol) provides civil and structural engineering, construction management, planning, and permitting services for projects that make a difference in Alaska. Our company has the resources and experience to oversee complex, multi-faceted projects, from logistically challenging sanitary infrastructure and roadway design in rural Alaska to comprehensive civil design services for Government, military, and private clientele nationwide.

## Join Our Team!

For more information contact  
Human Resources at [hraq@bbsllc.com](mailto:hraq@bbsllc.com)  
or go to our website  
[www.bristol-companies.com](http://www.bristol-companies.com) and click Careers

### Positions Open

**Civil Engineer** | B.S. in Civil Engineering plus 3 to 10 years in civil design work.

**Civil Engineering Intern** | Two years of completed coursework in a B.S. Civil Engineering program

# Life Member Spotlight



**Name:** Lynda L. Barber-Wiltse, PE, F.ASCE  
**Hometown:** Born in Lawton, OK, raised as an Army Brat and lived in Anchorage, AK (since 1982)

## Background

**Where did you grow up?** I grew up as an Army Brat (OK, WA, OR, Germany, KS, TX). My parents claimed OR as our home of reference.

**What brought you to Alaska?** I graduated from HS in Texas, then my dad got his dream assignment – Ft. Greely, AK. So, I followed my family North to Alaska and started my first two years of college at UAF.

**What made you want to become an engineer?** After first 2 years of college at UAF, I took a break and worked as a bull cook during construction of the Trans Alaska Pipeline for about 1.5 years. Then it was time to return to college and I chose Colorado State University. One of my UAF math professors thought I should pursue math as a career, so I applied to the math program at CSU. However, once I arrived at CSU and



**Around 1957 - First memory of Civil Engineering.** Grandpa Buck used to take me to work with him while they were constructing Highway 101 in Southern Oregon. He was a surveyor. Not sure who the dozer operator in this picture was.

thought about a math career, it did not fit ... And I switched to Civil Engineering. THEN I learned about all my Civil Engineering relatives – paternal grandfather and paternal uncle were both Civil Engineers (AND ASCE members), maternal grandfather and maternal uncle were both highway construction managers and surveyors.

**If you had to choose a different career, what would it be?** Veterinarian.

**What college(s) did you attend?** University of Alaska, Fairbanks; Colorado State University, University of Alaska, Anchorage.

**Can you list your degrees, any honors and/or awards, and involvement in engineering organizations?**

Associate of Arts in Science, University of Alaska, Fairbanks - 1975; Bachelor of Science, Civil Engineering - 1979, Colorado State University; Master of Civil Engineering, University of Alaska, Anchorage - 2007  
 Member of Chi Epsilon Civil Engineering Honor Society and Tau Beta Pi Engineering Honor Society (CSU)

ASCE Anchorage Branch Engineer of the Year - 1992; ASCE Anchorage Branch and

Alaska Section Engineer of the Year - 2005  
 ASCE Technical Council on Cold Regions Engineering (TCCRE) Harold R. Peyton Award for Cold Regions Engineering - 2010  
 UAA College of Engineering, Alumni Hall of Fame recipient - 2016

ASCE - involvement started in college at CSU - I was President of the Student Chapter. Have served in all chairs in Anchorage Branch, Alaska Section and Pacific Northwest Council. I was also active in the Technical Council on Cold Regions Engineering (TCCRE) - all chairs in Executive Commit-



**Graduating with a Master of Civil Engineering from UAA in 2007**

tee, Chair Awards Committee, Member Program Committee.

## Work/Professional Experience

**What is your favorite part about being a Civil Engineer?**

Improving people's quality of life! Doctors save one life at a time while Civil Engineers save villages and communities. The majority of my career was spent working on public water and wastewater projects and most consumers do not fully understand where their water comes from or their sewage goes to.

**What skills do you find most valuable to focus on in your career?** Math is an obvious answer! However, if I had to pick

one of the most important skills, I would pick Communication - both written and oral. Because, if you cannot communicate your ideas, you will have a hard time selling or building them.

**What drew you to your specific career path?** It just sort of happened! Early in my career, I worked on a variety of projects in the private sector consulting world including some water and wastewater pipeline jobs. Then I accepted a project design engineering position at the Anchorage Water and Wastewater Utility (1984) and stayed!

**If you could start your career differently, what would you do differently?** I have no regrets on how my career progressed! Hmm, what would I do differently? Well, if I had started my AWWU career earlier, I would have different retirement options now!

**What is the most challenging project, task, or role for which you were responsible?**

When I was the Special Projects Manager/CE III in the mid to late 1990's. I was the sole AWWU Engineering staff member in the Special Projects section for the Anchorage Loop Water Transmission Main, Phases I, II and III construction phase and Eagle River Reservoir and Water Transmission Main design and construction phases. Total authorized budgets for these projects was over \$28 million. Anchorage Loop Phases I, II and III (24,000+ lf of 48-inch water transmission main; 3 main-line valve vaults and miscellaneous air vac/air release and PRV/meter vaults) and Eagle River Reservoir and WTM (3 million gallon, welded steel water reservoir; 13,000+ lf of 12- and 16-inch water transmission main; and 2 booster stations)

**What lesson or skill did you earn from that experience?** That it took longer in the 1990's to secure permits to construct a public water



## PROJECT ENGINEER

SITE DEVELOPMENT

R&M Consultants, Inc. is seeking a team-oriented Project Engineer to support growth with our Site Development Group. As part of the R&M team, the Project Engineer will be responsible for performing analysis and design tasks related to site development on significant and technically challenging infrastructure projects that make a difference in the day-to-day lives of Alaskans!

### QUALIFICATIONS

The successful applicant will have a B.S. in Civil Engineering plus 5 to 10 years in civil design work, with an emphasis in site design. Other desirable qualifications include experience in written design analysis, drainage impact analysis, site accessibility analysis, and commercial development permitting.

**APPLY TODAY**

[www.rmconsult.com/careers](http://www.rmconsult.com/careers)





In the mid 1990's, getting ready to inspect the interior of the 48-inch Eklutna Pipeline from Ship Creek to the AWWU Ship Creek ERS. The Eklutna pipeline was shut down while we connected the 48-inch Anchorage Loop Water Transmission Main Phase I to it. This is the "before" picture. We were not this clean in the "after" picture! This was yet another time in my life when being short was a benefit!! Especially when we had to crawl thru a butterfly valve!

main in Anchorage than it took 50+ years earlier to design and build a rudimentary and drivable Alaska Highway! (my knowledge comes from being part of the ASCE/Alaska Section group that teamed with our Canadian neighbors to recognize the Alaskan-Canadian (Alcan) Military Highway as an International Historic Civil Engineering Landmark)

**What was the project you felt had the greatest impact on your professional career?** During my 32-year career at the Anchorage Water and Wastewater Utility (AWWU), I worked in various roles on over 225 projects valued at \$332+ million – so it is hard to pick one! If I HAVE to pick one, it will be the Anchorage Loop Water Transmission Main Phases I, II and II projects.

**Looking back, what do you think was your greatest contribution?** Not letting contractors or politicians bully me into making inappropriate decisions and for listening to contractors and designer and treating them fairly.

**Did you have any mentors?** Yes, a few

thru the years.

**Who or what did you learn from as you grew in your career?** It varied. I was fortunate to have a few supervisors that cared about and supported my professional activities. I also received support and encouragement from my ASCE friends – especially in TCCRE.

**How/Why did you get involved with ASCE?** In my Junior year at CSU, I hung around with many graduating Seniors. They helped get me involved in the Student Chapter – and I was elected President. Once I graduated and moved to Anchorage, I joined the Anchorage Branch and stepped up to the plate as a Board member! The rest is history!

**Why did you choose to stay involved?** I love our Civil Engineering Profession and am proud of ALL the types of projects we do and services we provide. ASCE is the best way to stay in touch with the vastness of our profession and its impact on our Quality of Life.

**How has ASCE impacted your work and/or what is your favorite benefit of your involvement?** Many of the leadership skills I developed thru ASCE, attending and presenting at ASCE conferences and working my way thru the chairs in the Anchorage Branch, Alaska Section and Pacific Northwest Council and TCCRE enhanced my resume and assisted with promotions at AWWU from Design Engineer to Design Supervisor to Project Manager/Project Management Supervisor and Special Projects Manager. I developed additional supervisory and leadership skills thru volunteering at ASCE that I could not develop on the job as a design engineer. Many of these ASCE developed skills were used during

public meetings and governmental/political entity presentations. I also cherish the many local and national level professional friendships and networks that I developed thru ASCE involvement and activities.

**What has been your favorite ASCE event or experience since you got involved?** Securing the endowment funding for the Technical Council on Cold Regions Engineering (TCCRE) Harold (Hal) R. Peyton Award for Cold Regions Engineering, designing the award plaque, and leading the Awards Committee where we bestowed honor on many deserving fellow Cold Regions Civil Engineers.

**What advice would you give to young professionals in the organization?** Your ASCE colleagues and friendships help balance out your professional experiences as a Civil Engineer. You may change jobs, but your ASCE "family" stays with you and can be a constant and positive part of your professional life. Get involved. Volunteer. Step outside your comfort zone. Give presentations.



Visiting the Hoover Dam. A National Historic Civil Engineering Landmark

## Hobbies

**Favorite hobbies, sports, and interests outside of engineering?** Dog training, competing, and instructing. I own and breed Chesapeake Bay Retrievers (since

the mid 1980's). I teach basic skills and obedience, rally and agility classes and train and compete with my dogs in conformation, obedience/rally, agility, dock diving, retriever field events, tracking, lure coursing. I have earned more than 470 titles on sixteen dogs to date competing on both a local and national level. I am also an Australian Shepherd Club of America (ASCA) obedience and rally judge (even judged in Germany) and am pursuing my American Kennel Club (AKC) obedience and rally judging licenses. I am also a North America Diving Dogs (NADD) dock diving judge.

**Other volunteer organizations or experiences that you'd like to share?** Besides ASCE, I actively volunteer in local and national dog groups. I am a charter member of Alyeska Canine Trainers (ACT) in Anchorage and have served in most positions on the Board. I am currently President of the national American Chesapeake Club. I am also active in a few other local dog clubs.



2004/2005 - Girdwood Wastewater Treatment Facility Membrane Bioreactor (MBR) Pilot Plant Project – WE engineers were the operators! From installation thru monitoring AND cleaning up all messes!

# SUSTAINING SUPPORTERS

Opportunity to become a sustaining support of the ASCE Alaska Section is open to become a sustaining supporter of Civil Engineer Alaska. Your support will help advance the following activities:

- ◆ Dale Nelson Memorial Civil Engineering Scholarship
- ◆ Alaska Infrastructure Report Card
- ◆ Recognizing Civil Engineering Projects of Historical Significance
- ◆ Dream Big—Engineering Our World K-12 Outreach Efforts
- ◆ Annual Legislative Fly-In

Your company logo and job opportunities with your company will be featured in this newsletter, which will be shared with our statewide membership, industry leadership, and our partner organizations via digital and social media.

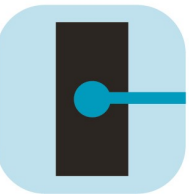
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Email [AlaskaASCE@gmail.com](mailto:AlaskaASCE@gmail.com) for more Information

# SUSTAINING SUPPORTERS



# Bristol



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