Anything but Conventional

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Engineering Alum Helps Lead One of SLC’s Biggest Projects

Salt Lake City’s Department of Public Utilities is building a new water reclamation facility to replace its nearly 60-year-old treatment plant, which is nearing the end of its useful life. The project is the largest ever undertaken by the department, and a USU engineering alumnus is helping to lead the effort.

“I had the opportunity to facilitate this project in the conceptual phase, assist through the design phase, and now manage construction,” said Alex Christensen, a Utah native and USU Engineering graduate. “I’ll be here to help finalize the project through to startup and commissioning of the plant. A project of this size would not be possible without a multitude of people coming together.”

The enormous undertaking has at times involved more than 500 craft labor, in addition to design, engineering, public outreach and multiple construction firms. It will take about 130,000 cubic yards of concrete to complete the new facility, which will be capable of treating, on average, 48 million gallons of wastewater per day. The new facility boasts innovative treatment and industry-leading efficiency technologies. One such technology is the new Biological Nutrient Reactor, which exposes wastewater to bacteria under various oxygen concentrations. The bacteria consume organic material and take up nitrogen and phosphorous. Another is the site’s new ultraviolet facility, which will replace the need for chlorine gas disinfection and improve safety.

“The new facility is such a massive project and will ultimately be a big part of how our city functions,” said Christensen. “Residents often take these utility services for granted, but when something goes wrong it can disrupt people’s lives. Our department works hard to keep that from happening, and this new facility and infrastructure will play a major role in maintaining wastewater treatment operations and meeting new permitting requirements, which helps protect the Great Salt Lake ecosystem.”

For Christensen, a licensed professional engineer in both Utah and California, the project is an important step in his professional journey. He says he’s proud of the way he and his department and project team managed the design and construction phases of the project during a complicated time. Not even the COVID-19 pandemic, which brought added challenges in staffing, materials shortages and unexpected price escalations, could shake his resolve to keep the project on track.

“I have a project management mentality so I like to do things efficiently and properly,” he said. “Serving humanity and the environment—there’s a lot that goes into that. Working for the city as an engineer, it feels good to solve a problem in my own backyard.”

Now into year 4 of construction, Christensen has dozens of stories about the project—some that tell the macro engineering story, others the micro.

“In the early days of the project, we discovered a fox den on the construction site,” he said. “The biologist told us the den was large and had been there for generations. I made the decision that we would build an artificial den at the perimeter of the property using PVC pipelines and vaults, as well as dirt from the original den in hopes that the fox would relocate to this location. Based on activity captured by a game camera at the new den location, fox have been active in this area. We also planned different phases of construction to reduce environmental impact during bird nesting season. That’s the kind of mentality and culture that has guided this project.”

On a larger scale, the project team is aiming for the first Envision Platinum status project in Utah, which is a coveted official designation that recognizes superior design and operational plans that promote long-term sustainability. This focus on sustainability has resulted in a 98% reduction in construction waste sent to the landfill.

Christensen says his interest in the natural environment grew after taking courses from USU professors Ryan Dupont, Joan McLean, David Tarboton and others.

“One of my favorite professors was Ryan Dupont,” he said. “There was something about how he presented himself and his methods of teaching. He had an eclectic style and a unique way of embedding certain things into your knowledge. You could tell he cares about a student’s learning.”

Christensen’s advice to engineering students: take some time off before jumping into a busy career. “Take a break. Get refreshed,” he said. “An engineering degree can be very demanding. Of course, you have to be aware of job opportunities, so don’t let them pass you by.”

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Writer: Matt Jensen, matthew.jensen@usu.edu, 435-797-8170

Contact: Alex Christiansen, aschristensen74@yahoo.com