



INSIGHT

Engineers leverage technology for construction oversight on water pump stations

In 2020, the Southwest Pipeline Project (SWPP) needed two pump stations upgraded as part of their effort to increase the raw water supply from Lake Sakakawea to SWPP's water treatment plant in Dickinson, North Dakota. Engineering consultants normally oversee design details through periodic site visits during construction. However, this created unique challenges as Bartlett & West's partners on the pump station upgrade projects were unable to travel to the sites due to the COVID-19 pandemic.

Construction oversight accomplished with a technology solution

The engineering work on SWPP is handled through a joint venture between Bartlett & West and AECOM. While Bartlett & West's Bismarck staff are within an easy travel distance, AECOM's designers for the pump station upgrades were in Wisconsin and California. The team had to figure out how to complete visual inspection of the construction without bringing the designers to the pump stations. They first considered a call using virtual reality tools, but the lack of adequate cell service in the area didn't allow that.

Luckily, Bartlett & West has a technology solution that solved the challenge. The web-based software allows stakeholders to interact with linked, 360-degree, high-resolution photos of an existing project site to create a digital model. Users click on a hyperlink in an email that takes them to a 'dollhouse image' of the pump station. By clicking at various locations within the interactive imagery the user can move about inside the building and then rotate the view to look around, up and down. This technology proved a unique way to conduct digital site walk-throughs and analyze existing conditions.

Benefits realized by the consultants and staff

It was very beneficial to have the scans available for use by the team to go back to as needed to provide better context of the conditions and surroundings versus a series of photos. While the use of this technology on SWPP was mainly for consultant-to-consultant use, the captured images were also shared with the client and funding agency.

Ultimately, using this solution on the pump stations saved the client travel costs and increased safety during the pandemic. While nothing compares to having inspectors and designers on-site, Bartlett & West's solution is useful when necessitated by budget, distance or a global pandemic.