

Spotlight

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REGULATORY UPDATES | BEST PRACTICES | NEW TECHNOLOGIES

DECEMBER 2018

Our work touches everyday life.

From the water you drink to the air you breathe to the buildings and communities where you live, work and play.

Spotts, Stevens and McCoy is a family-owned regional engineering, environmental, and surveying firm serving local and global clients. We engineer solutions for a better world. Our work touches everyday life; from the water you drink, to the air you breathe, to the buildings and communities where you live, work and play.

EXPERTISE

- Building Engineering
- Site and Civil Engineering
- Survey, Data Capture and Modeling
- Water and Wastewater Engineering
- Construction Phase Services

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Solutions as Unique as Your Problems

This month we're shining the *Spotlight* on the unique solutions we provide our clients. We're using **National Cookie Cutter Week** as a reminder that *one size does not fit all!*

Everything we do begins with a challenge - a client's need or vision to make part of the world better: cleaner, safer, healthier, faster, smarter, closer, more efficient, or otherwise more useful. **In other words - no cookie cutter solutions.** Whether a client requires expertise in a single specialty or the integration of a wide variety of engineering disciplines, SSM is the single source for the solution.

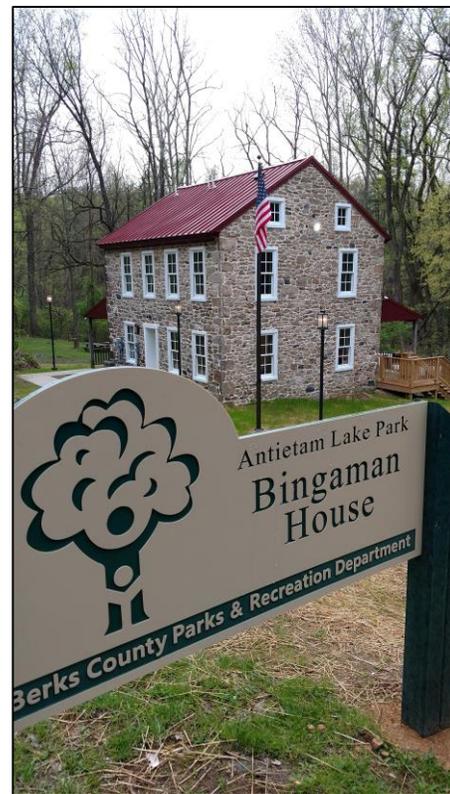
PROFILE

Site and Utility Updates

County of Berks

SSM prepared preliminary and final design plans and specifications for the site and utility improvements associated with the Bingaman House Recreational Center located at Lake Antietam Park, Lower Alsace Township, Berks County, Pennsylvania.

Designers worked with County staff to develop concept and preliminary plans which included ADA compliant parking and access to the existing Recreation center and design and permitting for an on-lot sanitary sewer holding tank system. Construction was completed in 2017.



PROFILE

Chiller Plant Study and Design Confidential Client

Corporate Offices and Data Center

SSM developed a plan to convert a chilled water plant consisting of two independent chilled water systems comprised of 2 – 600 ton chillers (N+1) and associated pumps and 2 – 250 ton chillers (N+1) and associated pumps to a single system consisting of 3 – 400 ton chillers and associated pumps. The project goal was to create a single central chilled water plant providing N+1 redundancy and development of a new sequence of operation allowing for automatic operation of the plant including automatic energizing of redundant equipment in the event of failure and rotation of equipment to equalize runtime. The project also included reconfiguration of power supplies to the equipment to reduce single points of failure.

The construction documents included instructions for phasing of construction to maintain operation of the existing plant while modifications and interconnection of the various subsystems was accomplished. The reconfiguration maximized the reuse of the existing piping network and power distribution.



PROFILE

Energy Audit and Systems Design Children's Beach House

The Children's Beach House is an approximate 20,000 sf two story facility that holds summer and weekend camps for children with communicative disabilities and other special needs.

SSM conducted a survey and performed an energy audit of the existing facility in 2010 and suggested several no cost and low cost strategies for saving energy as well as some capital improvement project that would have an impact on energy efficiency. In 2011 SSM expanded the energy audit to further investigate other energy saving strategies such as converting the existing heat pump system to a geothermal heat pump system, installing a wind turbine power generator, and installing a PV solar array.

After implementation of several energy conservation measures, SSM again was asked to evaluate more energy saving strategies for the facility with the consideration that the existing mechanical equipment was reaching the end of its useful life. SSM performed a life cycle cost analysis of the HVAC systems to compare replacement in kind with a geothermal heat pump system and a variable refrigerant system (VRF). The VRF system offered the lowest overall lifecycle cost and was recommended to the client. SSM is assisting the Children's Beach house in completion of grant applications to fund the project and will design the HVAC renovation.





PROFILE

Buccini Pollin Group, Inc. River Park Sewage Treatment Plant Tank Repairs and Design-Build Project

BACKGROUND

The River Park Sewage Treatment Plant of Montgomery County, Pennsylvania, is a 15,000 gallon-per-day treatment system which was constructed to serve a multi-tenant office complex with over 800 employees. In addition, the complex also encompassed a 430-student private school for Grades 1 through 12 including teachers and staff, as well as an All-Campus Community Center with a full gymnasium and stage.

CHALLENGE

The treatment system, which includes a concrete, conical-shaped vessel with steel partition walls separating the various treatment processes, experienced a failure of a steel partition wall within the treatment tank. The wall, which separated the aerobic digester and aeration compartments, became dislocated for unknown reasons. Upon SSM's full structural analysis after draining the tank one section at a time, it was discovered that the other partition walls were leaking and also slowly dislocating from the outer walls. Contributing to the urgency, the rehab of the tank had to be coordinated and completed in the short window of time during the school's holiday break in order to limit flows to the treatment plant.



SOLUTION

SSM was the Engineer, Contractor, and Construction Manager in the Design-Build project for the analysis, repair, and rehabilitation of the River Park Sewage Treatment Plant.

After draining the tank, it was determined that the steel partition was dislocated due to uneven loadings to the wall and the continuous filling and emptying of the treatment tank in the area of damage. Due to the other walls starting to fail, it was concluded that it would be necessary to incorporate new, stronger walls and leak-proofing to all sections of the treatment unit.

Moving forward, SSM would provide the structural design, plans, specifications and repairs for the proposed tank rehabilitation and replacement of the steel divider wall and all other tank repairs. Imperative to the project was a construction cost opinion, Issuing contracts to several sub-contractors to ensure efficiency of the project, and coordinating the draining of the tank and construction. SSM arranged for the rental of frac trucks and necessary diversion of incoming wastewater, as well as measures to prevent freezing during the 3-week window in January, including insulated blankets and installing heat tracing.

SSM successfully accomplished the structural repairs and leak-proofing on the River Park Sewage Treatment Plant. The project was completed in less than four (4) weeks, and the plant was back in full operation with the promise of structural stability and longevity for years to come.

Welcome Aboard | SSM welcomes new faces to the team.



William T. Orlowsky, PE, Senior Engineer joins our Water and Wastewater Engineering Department. Mr. Orlowsky's experience in the water and wastewater industry includes civil and water/wastewater design, field engineering during construction, and plant operations. His experience includes design of plant expansions and upgrades, collection and conveyance systems, developing treatment alternatives, development of plans and specifications, coordination of work with other disciplines, preparation of construction cost estimates, and preparation of permitting applications to regulatory agencies. He is a graduate of Temple University with a BS in Environmental Engineering and MS in Civil Engineering and is a Professional Engineer in Pennsylvania, New Jersey, and New York.



Robert Weinzapfel, PE, Senior Engineer joins the Water and Wastewater Engineering Department. Mr. Weinzapfel has engineering experience in power plants, wastewater and water treatment facilities, municipal and commercial facilities, and refineries. His experience includes heating, ventilating, and air conditioning (HVAC), industrial air treatment, boiler systems, chillers, plumbing systems, and other mechanical systems. Also experienced in mechanical design of pump stations, headwork facilities, digester/natural gas systems, and sludge heating systems, sludge thickening and dewatering facilities for wastewater. Weinzapfel, a graduate of Purdue University with a BS in Environmental Engineering is a Registered Professional Engineer in Pennsylvania and Maryland.



Jonathan E. Meyer, PE, Senior Structural Engineer joins our Facilities Engineering Department. His experience includes design engineering for building and foundation design as well as building renovations including steel, concrete, tilt-up concrete buildings, multistory office buildings, and heavy industrial equipment foundations. He is a graduate of Drexel University with a BS in Civil Engineering Meyer is a registered Professional Engineer in Pennsylvania, Maryland, Arizona, Kansas, Iowa, Missouri, Kentucky, Indiana, Michigan, and California.

Join Our Growing Team!

We are actively recruiting for qualified applicants to fill a variety of positions. Visit our website for more information about each of these opportunities.

- A **Project Representative - Construction Observer** to inspect structures and infrastructure using engineering skills to determine structural soundness and compliance with specifications and other regulations.
- A **Senior Water Engineer** to work with our engineering staff to support our work in the water, water resources, and wastewater engineering markets on projects such as municipal treatment facilities, distribution systems, collection systems, sanitary and storm sewers and storm water.
- A **Senior Civil Engineer** to manage municipal projects and perform technical assignments involving storm water management, MS4, local road improvements, and related civil engineering projects.
- A **Civil Engineer** in our municipal engineering group to perform technical assignments involving storm water management, local road Improvements and related projects.

Spotts, Stevens and McCoy was recognized by the Eastern Pennsylvania Water Pollution Control Association (EPWPCOA) receiving the **Joseph McKenna Award for technical and financial contributions to the EPWPCOA.**

Scott Carl, Sr. (Center) and Jamie Lorah, PE (Right) receive the award for SSSM.

