Centre for Organic Research & Education

Case Study

Shanghai Botanical Garden - Sponge City Demonstration Park

Background

Shanghai Botanical Garden, is located in the centre of Shanghai City, China, and is an ionic attraction for local communities and tourists. With collaboration between The Centre for Organic Research & Education (CORE), Shanghai Botanic Gardens Green Engineering Ltd and STAR Water Solutions the Sponge City Demonstration Park was built to protect water ponds and nearby waterways which are tributaries of Yangtze River.

The park not only features the world's best practice in urban water management but is also a refinement and testing ground for new innovation for future design. The collaboration project combines Shanghai Botanic Gardens horticultural and engineering expertise, along with their organics resource recovery & composting, with CORE's research capability.

The project

The Sponge City Demonstration Park is showcasing Advanced Biofiltration Media technology in runoff treatment, sediment control and water quality improvement on the site. Advanced Biofiltration Media (ABM) manufacturing included recovered and recycled materials from the Botanical Garden, and was deployed in a range of devices and systems, including SafeSox®, FilterBales®, Reactive Filter Unit (RFU®),a raingarden, and a STAR Water permeable weir. The proprietary computerized media designing and modelling tool The Kalkulus® ensures the most effective media formulations were applied to each device to achieve optimized treatment capacity.

The technologies showcased within the Demonstration Park were also designed to withstand numerous typhoons each year. This is achieved using CORE's stormwater research that selects the most appropriate proportions of each component to optimize the flow rate with treatment capability.

The water quality analysis reports efficient pollutants removal by the ABM technology implementation. Compared to prior Park construction, the Sponge Park removed:

- 75 – 98 % of heavy metals (Cu, Fe & Zn)
- TN and TP by 12 mg/L and 2.1 mg/L, respectively.