

Constructed Wetlands Water Treatment for Sea Lion Exhibit

Columbia, South Carolina



from top: State-of-the-art sea lion exhibit with underwater viewing wall; Newly built constructed wetlands before installation of vegetation

An integrated water strategy to recover, treat, and return filter backwash to new, state-of-the-art sea lion exhibit helps a popular zoo conserve water, enhance the visitor experience, and demonstrate its mission to foster appreciation for all living things.

The mission of Riverbanks Zoo, located near the confluence of the Saluda and Broad Rivers, is “to foster appreciation and concern for all living things” The Zoo’s new, state-of-the-art Sea Lion Landing exhibit demonstrates that mission—not only with its dynamic design and multiple underwater vantage points, but also with the way its wastewater is handled.

Working with Riverbanks Zoo, CLR Design, and internationally renowned zoo life-support system designer, Ted Maranda, Biohabitats developed an integrated strategy to naturally treat and recover filter backwash from the exhibit’s 300,000 gallons

of water. The system includes an underground equalization tank followed by constructed wetlands, which are embedded in the zoo’s landscape. After the majority of solids settle out by gravity in the tank, water is pumped through the wetlands, which passively filter nitrogen, phosphorus, and other pollutants before water is returned to the exhibit. The system prevents saline wastewater from being discharged to the municipal sewer, and is projected to save the Zoo approximately 52,000 gallons of water per year. It also greatly reduces the cost of creating the salt water for the exhibit.

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