

Technology Riding High in Huntington Beach

Surf City Expands with Cutting Edge Stormwater Technology

The Situation

Huntington Beach, CA, internationally known as the Surf City, showcases miles of beautiful beachfront, a world renowned pier, lavish restaurants, and an array of fine arts and cultural activities. With over 200,000 residents and 11 million visitors a year, the City realized that expansion was inevitable.

The city wanted to be proactive in their thinking and go above and beyond what was necessary to meet the federal and state water quality requirements. It was at this time that the city's civil engineers began researching natural stormwater filtration systems to be used in collaboration with the Heil Avenue Widening, CC-1230 Project. The widened street would provide one additional lane in each direction from Beach Boulevard to Silver Lane. Runoff from the existing and additional lanes would need to be treated. In February, 2008 the City of Huntington Beach contacted Modular Wetlands Stormwater Engineer, Zach Kent, to discuss possible retrofit options.



The Challenge

Heil Avenue Widening Project, like many other retrofit projects, faces one very common challenge, space constraints. The existing catch basin for the surrounding streets is located on the northeast corner of Heil Avenue and Silver Lane. This catch basin collects runoff from Heil Avenue and surrounding streets. The city needed a natural stormwater filtration system that would allow them to continue to use this existing catch basin. The only possible space to integrate a system would be on Silver Lane behind the existing catch basin and sidewalk. The city was concerned with treating metals, oil and grease, oxygen demanding substances, sediment, and trash and debris. A single system would need to address all these issues while satisfying the space constraint.

About Modular Wetlands

A new and revolutionizing product from Bio Clean is the Modular Wetland System (MWS). This system is the industry's first hybrid stormwater treatment system. While most systems utilize a single treatment method, the MWS incorporates a combination of many. It removes trash, floatables, oil and grease, sediments, heavy metals, nutrients and bacteria. Perfect for GREEN design and sustainable projects. For more information on MWS visit www.modularwetlands.com.



WETLANDS

T 760.433.7640

E info@modularwetlands.com

www.modularwetlands.com



The Solution

With such limited space, and the need for a natural stormwater filtration system, the city's stormwater department turned to Modular Wetlands for assistance. Because the Modular Wetland System - Linear (MWS – Linear) is only 22 feet in length and 5 feet wide, its Vault Type System would be a perfect complement to the already existing catch basin. "We worked closely with the City on all aspects of this project. We assisted them with the design and drawings, as well as provided guidance to the contractors at the time of the install," explained Zach Kent, Stormwater Engineer for Modular Wetlands.

Polluted runoff enters the existing catch basin. It's then diverted via a trough which directs the runoff into a pipe that enters the MWS-Linear. The low flows continue through the Modular Wetland System then back into the catch basin where the clean water is discharged. The first flush and low flows are

diverted to the system while high flows bypass over the trough and proceed into the catch basin's outflow pipe.

The MWS – Linear provides multiple stages of treatment. Sediment, organic matter, TSS, metals, nutrients, and bacteria will be treated. Before polluted runoff enters the last stage of treatment, a subsurface flow wetland, it is processed through two pre-treatment stages: hydrodynamic separation and media filtration. The hydrodynamic separation allows large sediments and total suspended solids (TSS) to settle out. The runoff is then directed through an innovative perimeter filter, which contains a revolutionary filter media called BioMediaGREEN. This media physically, chemically and biologically removes a wide array of pollutants including dissolved metals and hydrocarbons. Only after being filtered by the pre-treatment stages does the polluted runoff enter the subsurface flow wetland.

The Result

Installation of the MWS – Linear took place mid January 2009. "Considering the space constraints we are quite pleased how it turned out," said Zack Kent. "We had very limited space and needed our system to connect with the existing catch basin. We were confident that the MWS – Linear would be a perfect fit for this project." The Modular Wetlands system can treat up to 120 gallons per minutes.

From the January installation to present, the native plants used in this system have been thriving. "We always use plants that are aesthetically pleasing and well suited for stormwater runoff conditions," added Zach Kent. The system was designed with input from various city maintenance crews. The design is meant to allow for simple and fast cleaning by hand or with the use of a vac truck. This 'treatment train' concept minimizes maintenance costs because each treatment stage protects the next stage from clogging.



T 760.433.7640

E info@modularwetlands.com

www.modularwetlands.com