

Case Study

BIO CLEAN
ENVIRONMENTAL SERVICES, INC.



Application: Modular SSF Gravel Wetland for Enhanced Stormwater Treatment
Location: San Marcos, CA
Project: Ranch Santalina

The Challenge

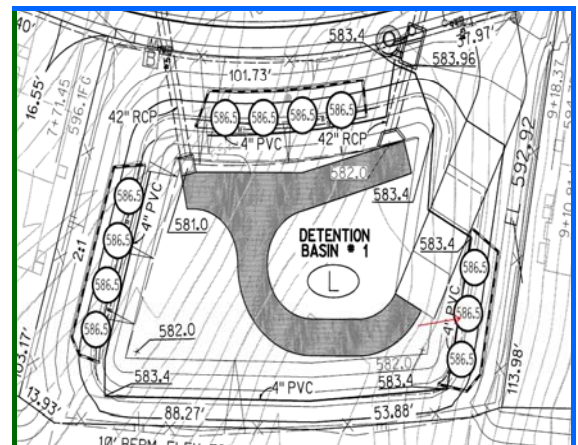
A large residential project was faced with new stormwater regulations. Specifically, the Regional Water Quality Board implemented a TMDL for bacteria for the creek in which the projects stormwater drained to. The stormwater treatment system had already been designed. The current treatment system included catch basin filters and a hydrodynamic separator for pre-treatment followed by a extended detention basin. Three of these treatment systems were installed throughout the project. Because of the TMDL the current

treatment system could not address the new pollutant of concern, bacteria, to a level acceptable by the San Diego Regional Water Quality Board.



The Diagnosis

The civil engineering firm analyzed the situation and discussed possible solutions to the current challenge. After thorough analysis of the situation and possible solutions it was realized that only a few options were available. At the time having to treat bacteria in stormwater was something new to the region. While the problem had been recognized and implementations of bacteria TMDLs were expected in the near future; no one expected this challenge to affect this project so abruptly. Luckily, a system did exist that could effectively address their challenge.



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Cause: New Stormwater Regulation—Bacteria TMDL
Solution: Install Modular Wetland Units Around Perimeter of Detention Basins

The Solution

The civil engineer proposed to enhance the current treatment system by installing 32 modular gravel wetland systems around the perimeter of the 3 existing detention basin sites. Sub surface flow gravel wetlands are one of only a few passive stormwater treatment technologies that are proven effective at removing bacteria at high levels. At the time Bio Clean Environmental Services, Inc was the only company that offered a pre-engineered proprietary modular wetland system. The 3rd generation system, called StormTreat, is a pre-manufactured round system containing internal pretreatment chambers. This system had been used across the county since 1994 with great success.



Since Then

The solution has been successfully treating nuisance flows and the first flush of stormwater entering the basins. Several site visits have been done over the past year to visibly analyze the quality of water leaving the units and the establishment of the plants. Water quality exiting the gravel wetland system has been excellent and the plants have quickly established to enhance the treatment and aesthetics of the project.



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