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A Constructed Stormwater Wet Basin: The Caltrans Experience

ABSTRACT

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A Constructed Stormwater Wet Basin: The Caltrans Experience

Abstract:

Over the past several years, the California Department of Transportation (Caltrans) has conducted numerous research studies to determine the treatment performances of various Best Management Practices (BMPs) used to treat stormwater runoff from Caltrans Right-of-Way. One such research study occurred in San Diego, California. In 1997, Caltrans initiated a comprehensive multi-year pilot study to design, construct, investigate the water quality performance, operation and maintenance needs, and to assess the vector production potential of a wet basin.

A wet basin is designed with a permanent pool of water with varying depths partially covered with vegetation. Chemical, biological, and physical processes occur to remove pollutants from stormwater. Sedimentation processes through extended detention of water remove particulates, organic matter, and metals. Biological uptake of the plants removes dissolved metals and nutrients. Chemical processes include chelation, precipitation, and adsorption.

This presentation discusses design methodology, construction issues, performance efficiencies, operation and maintenance activities, vector breeding that the wet basin has experienced, and lessons learned during four years of operation.