

## Case Study

# Treatment and Reuse

Project Manager: Manly Corporation

Enviro-media is a specifically engineered infiltration medium that uses selected organic matter or a blend of selected organic matter and minerals such as sand and soil that are used to physically, biologically and chemically treat contaminated air, soil and water. Treatment and purification is achieved by physically filtering sediments and contaminants, chemically binding contaminants to organic matter and biologically degrading contaminants.

The Manly Council Stormwater Treatment And Reuse (STAR) Project is designed to remove high-volume toxic contaminants, litter, nutrient rich and polluted stormwater currently being discharged directly into the coastal environment.

While previous projects such as the Stormwater Trust Project at Concord Council have identified impressive removal of key contaminants, the beachfront environment has many unique factors that subject it to even greater exposure to pollution. Intensive developments combined with high transient populations give rise to a substantially greater amount of vehicles and litter resulting in increased pollution loadings which exacerbates environmental impacts.

The STAR Project uses integrated catchment management approaches based on capital works that incorporate source control measures, community education and engagement programs that are designed to serve as innovative best practice models for future implementation in Manly and elsewhere.

The Manly STAR Project includes the use of stormwater litter traps that are fitted on drains to stop litter and sediments from roads flowing to the beach. Innovative porous paving installed on a nearby road also catches particulate matter.

The highly polluted run-off from short term parking bays along Ocean Beach is filtered through pervious pavers that are built into the drain. A five hundred metre section along the access road to the beach captures polluted stormwater from the corresponding road and carpark catchment.

After passing through a grate system the polluted stormwater is treated using Enviro-media. Containing naturally occurring micro-organisms Enviro-media biologically degrade and remediate toxic chemicals that are the result of daily urban and industrial pollution. Infiltrating through the specially designed structural Enviro-media used in Manly, typical contaminants such as hydrocarbons and metals found in road and car park run-off are treated without compromising the structural integrity of the pavement. The micro-organisms in Enviro-media eliminate the pollutants by degrading the toxic chemicals prior to water infiltrating into permeable channels.

From the channels purified water passes into 360,000 litres of storage tank. A pump system then uses the water to spray irrigate the Norfolk Pines that are a major feature of the Manly seascape. Excess purified water overflows and percolates through the existing sandy site soils to recharge ground water.

The University of NSW's Water Research Laboratory and Sydney Water will carry out monitoring programs to evaluate the effectiveness and efficiency of the project.



Photo courtesy of Atlantis Corporation