



WATER AND SEWAGE

ASTROLABLE PARK STORMWATER RENEWAL PROJECT

Stone Columns

AUSTRALIA



Owner

Sydney Water

Engineer

Royal Haskoning DHV

General contractor

EnviroPacific Services

Period of works

April 2016-May 2016

Main figures

Stone columns

629 stone columns installed



Project description

Sydney Water awarded EnviroPacific Services the contract for Astrolabe Park Stormwater renewal project as the current system had reached the end of its design life. As part of the upgrade, a rock lined sediment basin would be constructed, which will traverse areas of low lying ground as well as shallow water wetlands.

Ground conditions

Following site investigation it was found that the sediment forebay area is underlain by alluvial deposits, including very soft to soft peaty clay, which was expected to undergo consolidation due to the increased load imposed by the bund embankment, rock liner and associated structure.

Royal Haskoning on behalf of Sydney Water concluded that ground improvement works were required across the footprint of the proposed sediment forebay area to increase the soils bearing capacity and control both the total and differential settlement. The ground improvement works would also address the slope stability issues for the embankment.

Solution

In April 2016, Menard commenced the installation of 629 stone columns ranging from 3 to 8 meters in depth using the Dry Bottom Feed method of installation. This involved the use of a Vibroflot, comprising of an electrically powered eccentric weight assembly enclosed in a steel casing and tube to continuously funnel the stones to the bottom of the vibrator during the construction of the column, connected to a 120 TN Crane.

Menard Oceania safely and successfully completed the works in May 2016.

