

# HILTON HEAD AIRPORT - S. CAROLINA

## STORMWATER CASE STUDY

Beaufort County in South Carolina has been one of the South's high-growth counties over the past few decades due to its substantial U.S. military presence, its climate, and its location on the water.

To update its facility for more modern aircraft, Hilton Head Island Airport (HxD/HHH), located on the northeast part of Hilton Head, needed to add nearly 5,000 feet to its existing runways.



As one would expect of an island, water is very important to Hilton Head the airport project's impact on long-term water quality needed to be addressed in detail in the master plan, specifically the pollution wash off.

"This project had some particular challenges" said Paul Moore, Project Manager for Ward Edwards Engineering, a civil engineering firm out of Bluffton, S.C. "There were some dry detention basins and a very large canal that held water. The function of the airport made it necessary to fill in the canal and eliminate standing water onsite. The option of underground detention was very valuable to the design of the site."

Basins	2
Combined Storage Provided	150,500 CF
# Chamber Units	1,652
Recharger® Models	330XLHD & 902HD
Total Area	18,681 SF
Project Engineer	Ward Edwards Engineering
Contractor	Quality Enterprises USA, Inc.

Surrounding airports had made these runway adjustments years earlier, and Beaufort County officials and the Town of Hilton Head recognized the need for improvements was overdue. Without further ado, upon approval by the government, the 18-month, \$9.25 million project began.



CULTEC Recharger® 902HD Chamber

# CULTEC CONTACTOR® & RECHARGER®

## STORMWATER SOLUTIONS

"On one hand," said Jon Shell of CULTEC, "this was a fairly typical project for us, in the sense that they needed 150,000 cubic feet of storage. On the other hand, this job was the most unorthodox installation we've seen. Because of its location next to the runway, work could only be done at night when the airport was closed. Typically, our systems are installed over a few days and are only closed up when the job is completed."

"We considered products from three plastic storm chamber manufacturers as well as concrete arch chambers," continued Moore.

"We chose CULTEC knowing their design had been the lowest cost solution from other projects we've designed in the area that utilized large-scale underground detention systems. From an engineering point of view, we liked the CULTEC feed connector that allowed rows to be connected at intervals along the linear length. Given that the project called for very long rows, the feed connectors will allow flow to go from one chamber row to the next without adding in additional storm drain junction boxes and headers. All in all, our overall impression of CULTEC is positive. They seem to offer the best value in underground detention systems."



**CULTEC Recharger® 330XLHD Chamber**

The Southern system used 48-inch high CULTEC Recharger® 902HD™ chambers arranged in a bed area of 18,681 square feet with a storage depth of 5.75 feet (before additional cover). The chambers were placed on a 9-inch base of stone and were covered by an additional 12-inches of stone. Total storage capacity exceeded 68,000 cubic feet, with more than three-quarters of the water storage being provided by the stormwater chambers and CULTEC's unique internal manifold system and the balance of storage provided within the stone voids.



The Northern system featured the 30.5-inch high CULTEC Recharger® 330XLHD™ chambers configured into a narrow, five-row-wide system 1,403-feet long. They occupied an area of just over 36,000 square feet. The chambers lay above and beneath six-inch layers of stone and the outside perimeter of the system is surrounded by a 12-inch wide stone border. With an effective storage bed depth of 3.54 feet (without additional cover) this system has a total storage capacity of 84,420 cubic feet, with 63 percent of the storage accomplished by the chambers and manifold and the balance stored within the stone voids.



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