

LYNDEN PINDLING INTERNATIONAL AIRPORT

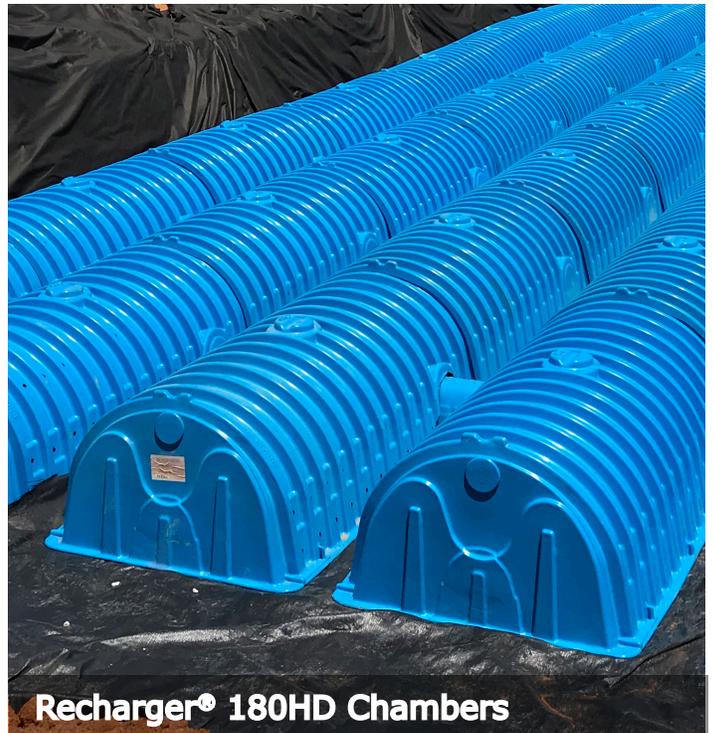
NASSAU, BAHAMAS - STORMWATER CASE STUDY

Lynden Pindling International Airport in the Bahamas needed to expand their facilities to make way for upgraded infrastructure. As part of their \$400 million airport terminal expansion and airside and landside improvements, engineering firm Stantec was responsible for designing the airport's new stormwater management systems.



The airport site presented several initial challenges, including very flat terrain with a high groundwater level. Because of this, runoff water had no drainage route and was collected and stored in open ditches and swales. Flooding of portions of the site during heavy or extended rainfall was a constant occurrence and disrupted operations frequently.

System Specs	
Storage Provided	42,068 CF
Area	24,658 SF
Chamber Model	Recharger® 180HD
# Units	1,155
Project Engineer	Stantec Portland, ME
Contractor	BMC Underground Services Nassau, Bahamas



Recharger® 180HD Chambers

After carefully considering alternative systems, engineers decided to provide stormwater retention using CULTEC's stormwater systems, specifically the Recharger® 180HD chamber, which offered the largest storage volume and was the best fit given the depth restriction scenario.

CULTEC CONTACTOR® & RECHARGER®

STORMWATER SOLUTIONS

“CULTEC allowed us to select from a range of chamber sizes to accommodate the site topography,” said Patrick Clark, Stantec Project Engineer. “The systems also provided enough storage capacity to handle at least six inches of runoff over the entire drainage area, as required by the Bahamas stormwater regulations.”



Open Graded Embedment Stone

In total, the two-phased project will implement four separate CULTEC systems in landside areas, each with its own unique storm drainage infrastructure and independent outlet control structures. In the first completed phase, two of the systems included approximately 1,150 chambers and provided a combined 42,068 CF of storage.



CULTEC Internal Manifold Feature

Both systems were installed using CULTEC’s unique internal manifold, which allows for decreased project footprint. This condenses the system and results in increased space. Additionally, this internal manifold allows for maximum design flexibility and eliminates the need for costly fabricated pipe manifolds.

The underground stormwater systems prevented the loss of valuable square footage that would have otherwise been needed for open storage areas. The systems function independently to distribute and balance the stormwater runoff, yet they are interconnected in the event that any one of the systems reaches capacity or overflows through the outlet structure.

Additionally, the systems are connected to several open swales and retention ponds distributed throughout the site to allow for excess capacity and runoff storage. The stormwater is retained until dewatering is complete via nearly a dozen new drainage deep wells. The underground stormwater systems contributed to solving yet another project challenge. The hard durable open graded embedment stone needed for the installation had to be imported from Jamaica.

According to CULTEC’s Director of Sales Fred Dotson, “CULTEC systems use less stone than other comparable systems on the market, lowering the overall installation costs.” Two additional CULTEC chamber systems will be installed during the project’s second phase.

The total storage capacity for all four systems is approximately 82,000 cu. ft. and will include approximately 2,250 CULTEC chambers.



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