



# British Precast Drainage Association

Publications from the British Precast Drainage Association (BPDA):

BPDA was formed in 2017 from the integration of the Concrete Pipeline Systems Association (CPSA) and the Box Culvert Association (BCA).

Information published by both CPSA and BCA will be rebranded and replaced as BPDA in due course. New material will be branded BPDA.

All CPSA and BCA web traffic will be redirected to the new BPDA web site at [www.precastdrainage.co.uk](http://www.precastdrainage.co.uk)



## Case Study: Contractor chooses concrete pipe as preferred material over HDPE

*The stormwater detention project at Akron-Canton Airport, Ohio, USA illustrates how concrete pipes can help designers and contractors to value engineer their underground attenuation solutions and maintain a high standard of service delivery and quality.*

By opting for concrete pipes, contractors Wenger Excavations were able to fit the system in a much smaller footprint, save considerably on project time and cost and offer a simpler, more durable, and robust solution.

The project is part of a 10 year \$110 million Capital Improvement Plan where an underground storm detention system was needed beneath one of the airport's parking lots. The project was originally designed by Floyd Browne Group as a 60-inch diameter (DN1525) high density polyethylene (HDPE) conduit and an alternative design with 72-inch diameter (DN1825) concrete pipes and fittings. The contractor chose to use concrete pipes to help reduce the structure's footprint, the length of pipe to be installed and the amount of site work required to meet the load requirements of the installation. A concrete pipe was necessary to provide structural security and strength below the 3 to 4.5 metres of fill and live load from the parking area. The original design included a layout of five different runs, connected by a series of bends and tees with up to 13 fabricated fittings in addition to multiple short joints

The design was subjected to value engineering and concrete pipe manufacturer Rinker (CEMEX) redesigned the detention system to accommodate four equal runs of pipe with 8 fabricated fittings and no short joints. The redesign reduced spacing between the pipe from around 1500mm to no more than 800mm. This resulted in significant savings in backfill and bedding material. The underground detention system required approximately 1,045 m<sup>3</sup> of stormwater to be stored and control-released through a sand filter system. The structure comprises approximately 335 metres of 72-inch (DN1825) American strength Class III concrete pipes, with 200mm thick walls. Rinker supplied 101 units of pipe (each around 3 metres long) with standard joints. The structure also included three 72-inch x 72-inch bell tees, two 72-inch x 72-inch x 72-inch spigot tees, and three 72-inch x 72-inch 90° bends. The 3 metre pipe units were produced and used to accommodate the tee fabrication and to reduce the number of joints to be installed.



*Detention system to accommodate 4 equal runs of pipes, 8 fabricated fittings and no short joints*



*Tees & bends to form manifold of structure*



*72-inch diameter bends and tees.*

The contractor excavated the entire footprint and installed up to 20 units per day on all four lines to ensure that the system would complete on schedule. The project began in autumn 2011 and was commissioned in 2012.

Concrete pipes have many advantages when it comes to construction projects at airfields, not only because of their strength, durability and frequent simplification of installation work, but also because of their resistance to fire and non-flammability.

## SOURCE

*ACPA Concrete Pipe News Spring 2012 Volume 64 No. 2*  
*Photos: Courtesy of Rinker Materials-Concrete Pipe Division CEMEX.*

For further information please contact your usual supplier:

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### **CPM Group**

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