Floating Along

The term "floating airport" usually conjures up an image of an aircraft carrier, but it also would have applied to the new runway area at Grand Forks International Airport in North Dakota— at least until a storm water drainage system was installed to combat the area's low water table.

Building the 3,300-ft-long, east-west, $6.5 million runway first required that the swamp-like acreage around the site was reconstructed for proper drainage. The drainage system used Mega Green corrugated high-density polyethylene (HDPE) pipe from Advanced Drainage Systems Inc. for the pipe's pre-drilled perforation pattern, which allows groundwater to enter the system and be carried away. More than 3.5 miles of pipe were required.

In designing the drainage system, Ulteig Engineers Inc. of Fargo, N.D., laid out the design using 18- to 60-in.-diameter pipe, with the largest diameter being the collector pipe, fed by the smaller diameter laterals. More than a mile of 60-in.-diameter pipe was installed, with the laterals connected in a herringbone pattern. Because it uses recycled material, the Mega Green pipe also was seen as an environmentally sound choice.

The HDPE pipe is made with a minimum 40% recycled content and is available with either a soil- or water-tight joint in diameters from 12 to 60 in. for gravity-flow drainage systems. The pipe provides both strength and optimum hydraulic capacity with a Manning's 'n' rating of 0.012. It will support H-25 live loads and meets ASTM F2648 standard specifications.

For drainage along the new runway and taxiways, ADS AdvanEDGE was used. More than 21,000 ln ft of the engineered panel-type HDPE pipe rapidly collect and remove water coming off the pavement and feed into the larger collection system.

Rehabbing a Centuries-Old Tunnel

A chief engineer with Guangzhou Municipal Group first saw Sprayroq protective and structural coatings at an industry conference in 2014. He found a trenchless rehabilitation project on 200 ft of an arch tunnel in old town Guangzhou in Guangdong Province of the People's Republic of China an ideal opportunity to demonstrate Sprayroq products to the city's utility departments.

As general contractor on this project, Guangzhou Municipal Group contacted Xiamen Anyue Trenchless Technology Eng. Ltd., southeast China's Sprayroq Certified Partner, which would be responsible for rehabilitation of the tunnel following inspection and cleaning.

The brick-and-mortar structure was more than a century old, and root intrusion and corrosion had caused severe damage. With one of China's largest rivers just a block away, the high groundwater table's hydraulic pressure had collapsed the line, causing severe leaking. Heavy silt covered more than 30% of the bottom.