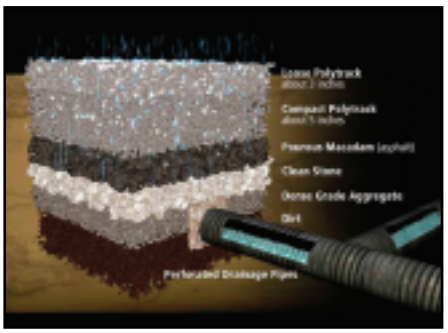
Vertical Drainage System Plays Vital Role in Horse Racetrack Renovation … And Safety

by Tori L. Durliat

IN horse racing, horse and jockey safety is top priority. Racetracks across the world are continually looking for ways to make their racing surfaces safer and more consistent.

With conventional dirt tracks, water drains horizontally which can compromise the track's condition by allowing it to freeze in cold temperatures or become muddy after hard rains. These types of conditions could lead to a decrease in the number of starters, increase in the number of injuries and in the number of cancelled racing days – all of which can contribute to unappealing wagering and reduced track attendance.



Some racetracks are turning to improved drainage and synthetic racing surfaces, like Polytrack, to help solve the problem.

This particular surface is made up of a blend of fibers, recycled rubber and silica sand covered with a wax coating that allows water to flow vertically through the top surface to the sub layers below and helps avoid a freezing or inconsistent racetrack. The sub layers include porous macadam and dense aggregate rock that provide a solid foundation while the vertical drainage system carries water away from the track. Together they work to provide a safer, more consistent racing surface in comparison to conventional dirt tracks.

To date, three North America racing facilities have announced that they will install this type of track and drainage system. Keeneland, located in Lexington,

Corrugated high density polyethylene (HDPE) pipe replaces deteriorating Reinforced Concrete Pipe (RCP) product.

Kentucky was one of them.

In the heart of Kentucky's Bluegrass Region, this storied racetrack was originally built in the 1930s and has since played host to some of the greatest races in the history of the sport. Keeneland has also welcomed many notable people over the years, including Queen Elizabeth II, Former President George Bush Sr., The Princess Royal and Princess Anne of England.

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Installation of ADS N-12 pipe.

A lot had changed throughout the years. Keeneland's grandstand, concessions and wagering technology had all been modernized, but, surprisingly, the main racetrack's design and layout had stayed the same.

In 2006, the time had come to say goodbye to the old dirt track. Keeneland Association Officials made the decision to replace it with the vertical drainage system and Polytrack combination. "Our track has not changed much since it was laid out and constructed using mules

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prior to our first race meeting in 1936. The time had come for us to take advantage of the latest, cutting edge advancements to create the safest racing environment possible, furthering the mission outlined by our founders to build a model racetrack," says Keeneland's President and CEO, Nick Nicholson.

Keeneland's existing dirt track was not having drainage problems. The reason the new vertical drainage system was installed was because it's a prerequisite to the Polytrack. One needs the other to function properly and the success of the final product is totally dependent on the two working in unison.

The Project

The installation process was quite extensive and the deadlines tight. The project began in May and needed to be complete by the end of August – in time for Keeneland's fall race meeting. Engineers and contractors who worked on the project all stressed the fact that the success of this synthetic racing surface is dependent on the quality of the drainage system installed underneath it.

Keeneland Racetrack completed and ready for the next big race.

GRW, Inc. Engineer, Harvey Helm, recommended Advanced Drainage Systems (ADS®) pipe and Nyloplast® structures and Keeneland, who had used the products in the past, agreed. "We chose ADS because of the quality of their products, their lower installation costs, lightweight design and practicality when working under tight deadlines and restrictions. We have always had good success with these products and that's why I recommended them," says Helm.

Three runs of perforated pipe running parallel to each other around the track were put in place, spaced about 20 feet apart. Then every three hundred feet around the track the three perforated pipes were connected to a cross drain perforated pipe that ran towards the inside of the track. These cross drains connected to the manholes, which were spaced three hundred feet apart.

Under the inner part of the track, just past the rail, a system of pipe was installed to gather the water coming from the track to the manholes. This system drained in multiple directions around the entire inner portion of the track. The pipe diameter ranged from 8" at the high point and grew in diameter to 30" at the low point.

At the low point of the manhole a 42" diameter pipe was placed across the track and over the back slope to an existing manhole.

Pipes and basins were also used around the clubhouse lawn areas for drainage of the newly established grades.

Elevation of the grandstand apron changed as well. This required an end-to-end drainage structure to empty the runoff of the trench and roof drains.

All told, the track and drainage installation incorporated almost 9000' of drainage pipe and 62 structures and basins, 16,000 tons of specialized Polytrack material, 90,000 tons of limestone and 4,500 tons of porous asphalt.

"The ease of adjustment on the Nyloplast really played a key role, especially in the grandstand area because of the number of existing roof drains. We used ADS pipe to tie the new system into the existing one," says Tommy Cramer, Project Manager, Central Rock Mineral Company. "The pipe with its longer length and ease of use with the Nyloplast

made for an ideal setup," adds David Curry, Vice President, Central Rock Mineral Company.

The Results

The new track has already been put to the test. Shortly after the installation, a record setting rainfall poured down and the new drainage system passed with flying colors.

The track's inaugural fall race meeting, held October 6 to 28, 2006, was a huge success. Results included an increase in total wagering, record attendance and average field size of 10.02 starters per race.

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The new design also attracted an extraordinarily high number of starters, as well as a large contingent of Breeders' Cup-bound horses.

"This meet has been extraordinary for us in so many ways," said Nick Nicholson, President and CEO of Keeneland. "While we are proud of the many records that were set, we are even more proud of how well the Polytrack surface and drainage system performed. It remained very safe throughout the meet, despite getting more than twice the usual amount of rainfall during the month." **L&W**

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