

SHORE PAC® Polymer Slurry System Exceptional Performance in Contaminated Soils



The University of Louisville Stadium Expansion plan added 60,000 seats with new space and amenities. Medium diameter drilled shaft foundations were constructed to support the expansion of the existing stadium. Vibrating caissons were not an option for some shafts due to space constraints, and difficult soil conditions made it challenging to drill the shafts.

PROJECT DETAILS

University of Louisville Stadium
Expansion

LOCATION

Louisville, Kentucky

PRODUCTS USED

SAND SEALANT/MULTI-SEAL™
SHORE PAC®
SLURRY BUSTER™
Sodium Hydroxide
Drilling Slurry and Additives
Slurry Engineering Services

CHALLENGE:

The building consists of a first-level basement, with a traditional well that has a high water table of 1.5 meters. Since the basement was designed for office space, and not as a parking zone, the developer wanted a trouble-free and totally dry environment—even during monsoon season.

SOLUTION:

Based on the developer's requirement and expectations, CETCO's Voltex DS waterproofing system was selected for its low cost and durable performance. The high-swelling and self-sealing properties of Voltex DS get additional protection from a high-performing HDPE layer for the water/earth contact face. Voltex DS was used in the vertical application for both the pre-applied and post-applied areas. Waterstop RX 101 was installed in all construction joints, and the Voltex DS was installed underslab. M/S Ramani Realtors has their dry space, delivered on time, throughout the year, even during challenging monsoon conditions.

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CHALLENGES:

Drilling in contaminated soil conditions with debris and having to control fluid loss.

The stadium, located over an old L&N rail yard, had heavy ground contamination. Steel rail lines remained underground, making drilling extremely difficult. It took many hours to break through the metal rails alone. Upon excavating each shaft, drilling tools had to be decontaminated and spoils from the auger were placed on plastic ground coverings.

SOLUTION:

The contaminants at the University of Louisville Stadium were detrimental while drilling with SHORE PAC. Buffering with proper additives and the use of elevated dosages of polymer compensated for any anticipated breakdown of the slurry. SHORE PAC was premixed in tanks for quality control and monitoring of both pH and viscosity during drilling. To prevent contaminants from dramatically attacking the slurry, Sodium Hydroxide was added. This allowed for enough time to drill the shaft and rock socket, set the rebar cage, and pour concrete. SHORE PAC performed exceptionally. Leo Schrantz from Brayman Construction stated, "We were shocked at its performance [SHORE PAC] with all of the contaminants in the shafts."

To control fluid loss and create a tight seal around the top can, the fluid loss additive Sand Sealant/Multi-Seal™ was mixed with the slurry on location and placed in the shaft. XX-Poly™ was added to the holes to boost viscosity and maintain shaft stability to prevent any collapse. Upon project completion, Slurry Buster™ was poured in the slurry tanks to breakdown the SHORE PAC polymer slurry and allow for a clean and simple disposal.

RESULT:

The use of SHORE PAC polymer slurry allowed for the project to be completed not only on time but on budget. A total of 25 shafts had been drilled near the stadium.

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