



Photo Credit: Gilbane Building Company



SEPTEMBER 2024

Written by:
JOANNA MASON, PE
SR. PROJECT MANAGER

DESIGN/BUILD
SPECIALTY CONTRACTOR

SCHNABEL
PRINCIPLED. PROVEN.

GENERAL CONTRACTOR

Gilbane

BACKGROUND INFORMATION

The Maryland Stadium Authority has announced a \$430 million plan to renovate M&T Bank Stadium, home of the Baltimore Ravens, over the next three years. The upgrades will include the construction of the North Plaza, an open-air space designed for tailgating and concerts, with viewing areas, an indoor sports bar, and a 7,000-square-foot retail area. Additionally, The Blackwing will feature 10 luxury suites connected to a private club. The Gatehouse will feature two levels of social space, a large screen, and a rooftop deck with panoramic views of the city. These updates, along with other infrastructure improvements, aim to enhance the overall experience for fans.



Rendering of the future North Plaza at the M&T Bank Stadium project (Photo credit: Baltimore Ravens)

SCHNABEL'S ROLE

In May 2024, Gilbane Construction Company contracted with Schnabel to design and construct an earth-retention system and deep foundations for the below-grade renovations at M&T Bank Stadium. As part of the project, Schnabel installed over 14,000 square feet of permanent shotcrete foundation walls, reinforced by more than 700 soil nails. They also installed 40 out of 52 permanent cased micropiles on the Upper Concourse using Schnabel's Klemm 806-4GM and 350 out of 400 hollow bar micropiles. All of this was done during the 2024 offseason from June to September using two rental MC8D drills. The remaining micropile work will be completed in the 2025 offseason when the Endzone stands are removed and the remaining Upper Concourse area is made available.



CHALLENGES



The only equipment entrance (8' x 8') to the service level

Schnabel faced several challenges before and during this project. There was heavy engineering oversight from the client prior to the start of the work and during the work. When onsite, the logistical challenges, included limited access to the construction site, which made moving heavy equipment difficult, working in tight spaces with other subcontractors, low overhead clearance, pumping shotcrete and grout long distances, unexpected equipment issues, and maintaining a clean stadium during operations.

These obstacles were addressed by closely coordinating with Gilbane and other subcontractors, and by adjusting the pile locations daily during drilling. When equipment broke down, Schnabel stayed on schedule thanks to support from their equipment division and vendors, who quickly mobilized additional drill rigs to the site. Schnabel's R&D department also played a crucial role by designing custom soil nail drills for areas with limited access, developing the right grout mix for the project, creating a low drill head frame system, and assisting with testing programs for micropiles that were shorter than the design length.

FAST-PACED SCHEDULE

The client set an aggressive timeline to ensure the stadium would be ready for the start of the 2024 NFL season. To meet these tight deadlines, Schnabel's crew worked overtime and night shifts, while the R&D department ensured the most efficient methods were used. Schnabel's equipment division also made sure the field team had the necessary tools to complete the job as quickly as possible.



Upper concourse micro piles south west gate (Gate D)

CONCLUSION

Despite numerous operational and equipment challenges, Schnabel installed quality work within the timeframe allotted. Their earth retention work at M&T Bank Stadium will support the client's efforts to upgrade the 26-year-old facility, enhancing the gameday experience for Baltimore Ravens fans.



Micro pile drilling at the service level adjacent to the shotcrete wall



Application of shotcrete to the wall

