



Project Spotlight

North Portal Bridge - Secaucus, New Jersey



Owner: Amtrak

Engineer: AECOM

General Contractor: PKF Mark III

Background Information

The Portal Bridge is a 108-year old swing bridge that spans the Hackensack River that carries 450 trains per day. A century old, the bridge must swing open to allow boats to travel underneath. Upon closing, the bridge sometimes becomes stuck due to its age and heavy use, resulting in a domino effect of delays for Amtrak and the entire Northeast corridor.

A double track replacement structure, the North Portal Bridge, is a modernized, higher clearance, fixed span bridge. It will allow faster speeds, along with greater reliability of shipments and of commuter transit. The replacement bridge will no longer have to be raised and lowered to accommodate passing boats.

The site is in close proximity to existing marshlands, and much of the construction must take place in the Hackensack River. The project team, therefore, has to take great care to mitigate environmental impact of the bridge replacement.



Project Details

This portion of the project was very close to the approach. At approximately 1,500 feet from one of the major substations, 4,265 cubic yards of Permeable Low-Density Cellular Concrete (PLDCC) were applied as backfill to an 18' soldier pile wall. 10 lifts containing approximately 500 cubic yards per day were used to apply the product, which took 10 days to complete.

Some challenges of the site were a high groundwater table which made access and placement of the concrete difficult. In addition, the proximity to the Amtrak and New Jersey Transit railways, which both had to remain operational, required the application to be minimally intrusive.





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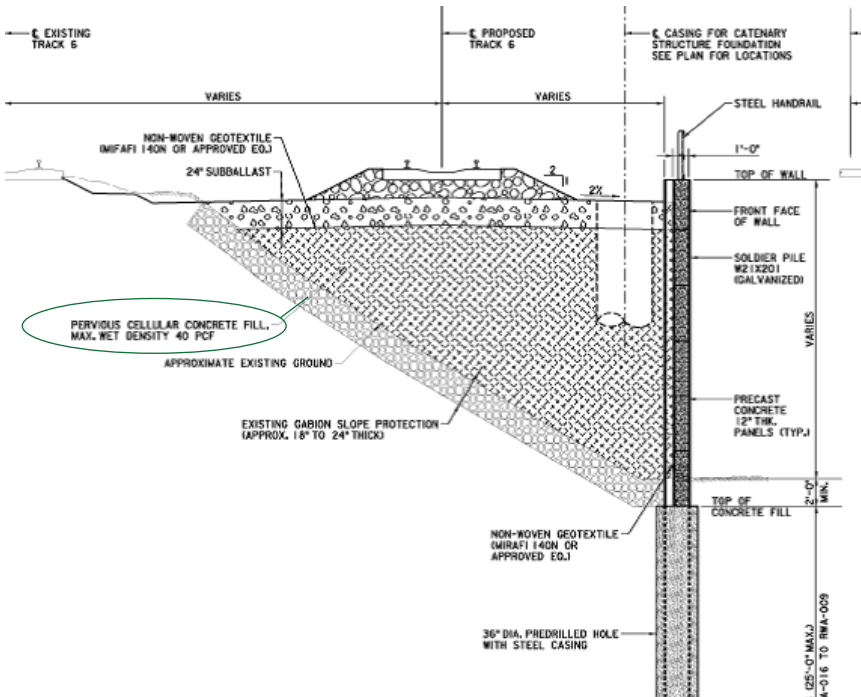


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Project Details, continued



Typical illustration of the placement of PLDCC on the North Portal Bridge project.

Aerix Added Value

The Aquaerix™ PLDCC fit the numerous challenges of the job. The installation hose could be easily fed around the wall and between the rail tracks. Utility vaults and piping were also being placed at the time of installation, each of which were perfectly backfilled with the PLDCC.

The overall installation was completed rapidly, without the need to fit the compaction equipment between the wall and the railroad. The minimal site access made the application equipment the perfect choice. Minimal time was spent near the active railroad, meeting the need for optimum safety under dangerous conditions.

