Project Spotlight

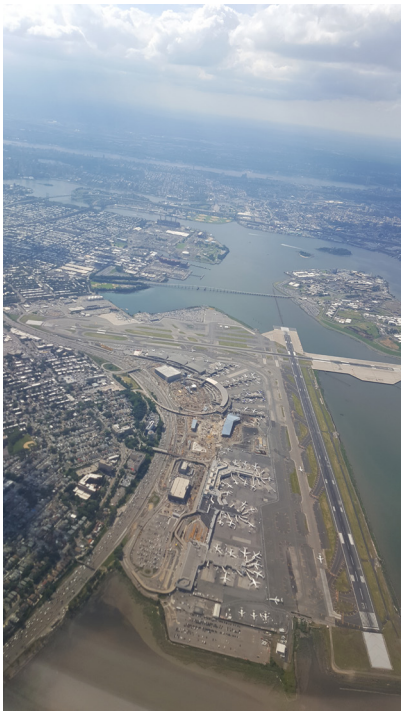
LaGuardia Airport - Queens, New York

Owner: Port Authority **Installer: Throop Lightweight Fill**
General Contractor: Skanska/Walsh, Joint Venture

Foaming Agents and Technical Support Provided By Aerix Industries

Background Information

LaGuardia Airport in Queens, New York, has undertaken a massive construction project to improve its services to national and international customers—building an entirely new Central Terminal B. One of the largest construction projects in the country, this $4.2 billion project began in January 2017 and is slated for completion in Summer 2021.

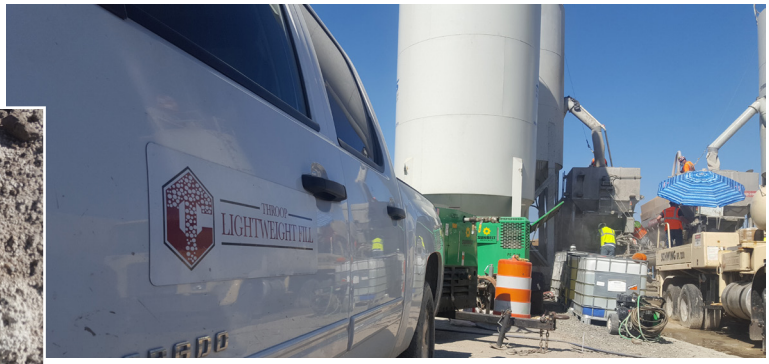


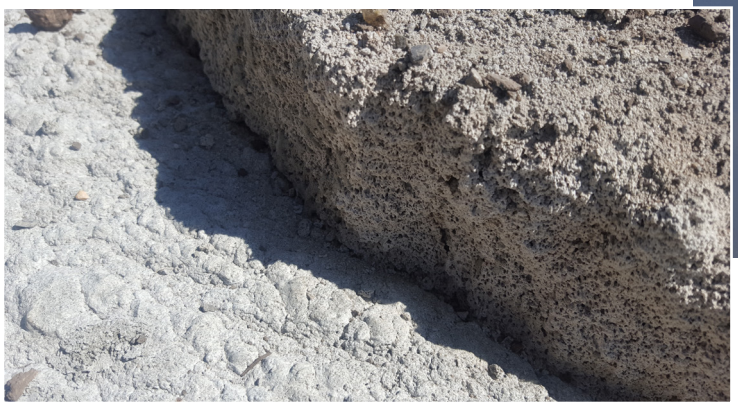
Needless to say, over the last three years, this project has required intensive design, engineering, construction, and logistical planning between a number of teams. Covering more than 1.3 million square feet of the airport's 680-acre campus, this project is a joint venture of Skanska and Walsh Construction, two of the most well-known and respected global construction companies. In addition to typical construction details, the teams also had to account for the fact that LaGuardia would remain open during all phases of construction, requiring significant attention to detail from all teams involved.

One of the most essential initial phases of the project included determining how the foundation for the new structure would be prepared. This preparation would require the entire area to be covered with a fill material that could be used to backfill three miles of trenches built for underground utilities while also preventing any water from the two adjacent bays from seeping into the foundation and surrounding soils.

Project Details

The selection of a high-performance fill material was of the utmost importance, and the teams at Skanska and Walsh Construction quickly determined that the most effective material would be low-density cellular concrete (LDCC), due to its high compressive strength, extreme light weight, and enhanced ability to resist water infiltration. The teams chose to work with Throop Lightweight Fill, a construction company known for its completion of rapid-set concrete projects, to complete the application of LDCC.





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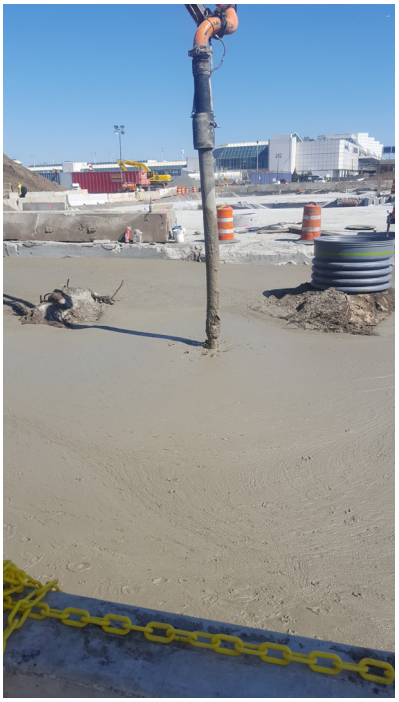
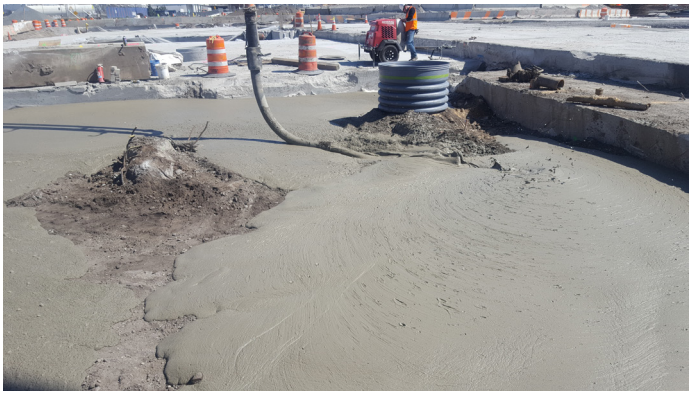
Project Details, continued

The first step in this process was for Throop to create and test a custom mix of LDCC to meet the specific requirements of this unique project. Throop mixed and tested the material offsite until creating the ideal mixture of LDCC for this project. The team needed to ensure that the LDCC used would not only meet project specifications for compressive strength and water resistance, but that it would also be flexible enough to be dug through, in anticipation of any future maintenance or construction work that might be required. Once testing was complete, and Throop was confident that their custom mix of LDCC passed all of the required tests, the next step was to set up the onsite equipment needed for application.

Facing the unique challenges of standing water, extremely saturated surrounding soils, and winter-time temperatures, the team at Throop began installing the LDCC at a rate of more than 200 cubic yards per hour, installing more than 2,000 cubic yards per day. In total, the team installed approximately 90,000 cubic yards of LDCC across the entire project.





Aerix Added Value

For the LaGuardia Airport Central Terminal B, there is no question that LDCC was the best solution for the foundation backfill and underground utility protection needed to ensure long-term structural stability. With its unique lightweight characteristics, ability to resist water infiltration, and enhanced compressive strength, LDCC is ideal for applications that require both the protection of underground utilities and the mitigation of structural issues that can arise in areas with soft, saturated foundational soils.

For LaGuardia, LDCC will not only ensure structural stability for this new terminal, it will also reduce both construction and long-term maintenance costs for the facility. Due to its high flexibility, the application of LDCC required less time than originally planned, which significantly minimized labor and material costs on the jobsite. Additionally, because the LDCC provides easy access to the building foundation and underground utilities, it will facilitate efficient maintenance and construction operations that might arise in the future.