



RAPID-HARDENING DOT CEMENT IDEAL FOR COLD-WEATHER CONCRETING

Project Type:

Bridge Approach Slabs

Application:

Repairs and restoration

Location:

Hopewell, New Jersey

Project Dates:

November 18–19, 2020

Project Owner:

New Jersey Department of Transportation

Contractor:

J. Fletcher Creamer & Son

Project Size:

90 cu. yds.

Product:

Rapid Set® DOT Cement

When the New Jersey Department of Transportation (NJDOT) needed to replace four bridge approach slabs on Rt. 31 in Hopewell, N.J., contractor J. Fletcher Creamer & Son had to perform the work in temperatures ranging from 18° to 49° degrees Fahrenheit. To deliver quality results in cold conditions, the Hackensack, N.J.-based contractor used Rapid Set® DOT Cement.

Rapid Set® DOT Cement is an industrial-grade, fast-setting concrete that is typically ready for traffic and loading within one hour after placement. The material was chosen for this project because its specially formulated blend includes a plasticizer and an air-entrained additive. The plasticizer is a water reducer that improves workability and strength. Air entrainment provides long life in freeze-thaw regions. The high-performance blend eliminated the need to adjust the concrete mix with additional admixtures to meet NJDOT requirements.

Work took place Nov. 18–19, 2020. To help ensure concrete setting times were not delayed by cold temperatures, which could result in reduced concrete strength, the crew added hot water to mix the approximately 90 cubic yards of concrete in volumetric mixers. The crew stored aggregate and other materials indoors to protect them from the extreme cold.

PROJECT PROFILE

DOT Cement qualifies as very rapid hardening (Cement Type VRH) per ASTM C1600, Standard Specification for Hydraulic Cement. For this project, compressive strengths averaged 3,810 psi after three hours, 4,900 psi after six hours, and 5,220 psi after seven hours. The high early strengths allowed the concrete to be exposed to freezing temperatures that portland cement concrete typically cannot handle.

CTS Cement Manufacturing Corporation manufactures Rapid Set professional-grade cement products for concrete repairs and new construction projects. Contractors, owners, engineers and architects choose Rapid Set to eliminate problems they have with other concrete repair materials, to save time and money, when superior durability is required and results need to be aesthetically pleasing. For more information about CTS Cement and Rapid Set, please visit www.CTScement.com.

ABOUT CTS CEMENT