



PANAMA CANAL SOIL STABILIZATION

Project Type:

Infrastructure

Application:

Grouting

Location:

Panama

Project Date:

2015

Project Owner:

Republic of Panama

Engineers:

MWH Global (A Stantec Company) and
DYWIDAG Systems

Project Size:

366 feet long x 50 feet wide

Product:

Type K Shrinkage-Compensating Cement Grout

One of the most significant engineering feats of modern times, the Panama Canal, opened to maritime traffic in 1914 providing a shorter and safer passage between the Atlantic and Pacific Oceans. Today, approximately 13,000 to 14,000 vessels travel the canal each year, with that figure expected to increase dramatically by 2016 when the current canal expansion project is complete.

This is the largest project at the canal since its original construction. The expansion is creating a third lane of traffic via a new set of locks. The new lanes will double the waterway's capacity and dramatically increase the size of vessels that can traverse its waters. The existing navigation channels are being widened, and several new access channels are also under construction.

One of these access channels will connect the new Pacific Lock with the Pedro Miguel Locks toward the north and also with the section of the canal that is known as Culebra Cut. During construction of the access channel north of the Pedro Miguel locks, a peninsula known as Punta Norte de Cartagena required stabilization.

Here, the unstable earth was reinforced with cast-iron piles driven 60 to 80 feet into the ground. A non-shrink grout was required to secure the piles in order to avoid voids that might absorb water in the nail

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tubes and cause corrosion of the steel. CTS Cement's Type K Shrinkage Compensating cement grout was specified to meet these needs.

Type K Shrinkage-Compensating cement grout is engineered to prevent drying shrinkage cracking common in traditional grouts.

The controlled expansive forces created with Type K grout overcome the anticipated shrinkage of portland cement and produce a durable, high-performance grouting solution that maximizes the protection and long-term performance of the reinforcing steel. Type K Cement was mixed in ready-mix trucks to produce the grout for the 366-foot-long by 50-foot-wide project area.

Several pre-stressed reinforced concrete girders were placed in a fan-shaped form to provide further support. The girders were anchored using 46mm Ø, Grade 150, double corrosion protected (DCP) DYWIDAG Bar Anchors.

When complete, the Panama Canal expansion will allow the passage of larger ships carrying more than double the current cargo limits. Lock improvements will allow faster passage, and international maritime trade will experience lasting results.

CTS Cement was proud to be a part of this historic project.

For information on how Komponent® can be used to provide a high-performance shrinkage-compensating concreting or grouting solution on your next project, contact a member of the CTS Cement Engineering Team at (800) 929-3030 or info@CTScement.com.

