CASE STUDY
SEAWALL REPAIR

Canal Soil Voids and Panel Displacement Threaten Surrounding Property

Pinellas Park Water Management District in Tampa/St. Petersburg, Florida contacted engineering firm CDM Smith regarding widespread problems with their stormwater/ drainage canals. Flat concrete panels make up the floor and angled walls on the sides of the structures. Erosion behind the side panels was weaking the soil and causing voids to form. Panels were cracking and buckling because the soil support behind them was disappearing. The soil erosion threatened both the function of the canal and the integrity of soil supporting surrounding structures. In addition, sinkhoes were forming near the edge of the canal, threatening the safety of municipal workers as well.

A GPR (ground penetraiting radar) report confirmed soil erosion as the cause of these problems. The district was faced with two options: replace the canal or repair it. Repairing is more cost effective, faster, and less invasive. CDM Smith contacted Alchatek for technical guidance. Alchatek brought in their customer, soil testing and grouting firm Basic Engineering, to do the actual repair work for the project.

Powerful Polymers

Basic Engineering repaired the damage with AP Lift 475 polyurethane foam. This product was chosen because it is:

NSF Approved

Florida DOT Approved

High-Strength Material

Physical Properties - Cured

AP LIFT 475			
Compressive Strength	(ASTM D-1621)	100 p.s.i. or 14,000 p.s.f.	6,895 millibar
Tensile Strength	(ASTM D-638)	100 p.s.i	6,895 millibar
Expansion	(Unconfined)	14-16 times	-
Density	(ASTM-D 1622)	4.5 to 5.0 lb/ft3	72.08 to 80.09 kg/m3
Shrinkage	(ASTM D-1042/D-756)	Negligible	Negligible

Properties will vary depending on application conditions.

Alchatek

Painless Procedures

AP Lift 475 was injected in a grid pattern behind the concrete panels to fill the voids. Some of the panels had sunken into the void or weakened soil. In those cases, AP Lift 475 was used to lift the concrete back into place and re-align it with adjacent panels.

Rapid Results

The repair was completed and the Pinellas Park Water Management District was happy with the results. A couple of years later, the district inspected the repairs in order to see how they help up over time. The repairs remained intact.

About Alchatek

Alchatek is an international leader in the manufacture and supply of chemical grouts and construction products for Geotechnical, Leak Seal, and Seawall Repair applications. Providing solutions from its headquarters in Tucker, Georgia and its manufacturing facility in Reno, Nevada, Alchatek specializes in advanced construction technologies for sealing leaks, stabilizing soils, lifting concrete, and protecting infrastructure and seawall structures. To best serve its customers, Alchatek is organized onto three divisions:

The Leak Seal Division combines a full system offering of polymer chemical grouts and equipment with perhaps the most experienced technical team in the industry. It specializes in preventing water ingress through concrete infrastructure including parking garages, culverts, basements and foundations, and sewer manholes.

The Geotechnical Division offers a complete line of single component products for soil stabilization as well as two component polyurethane foams for concrete lifting, void filling, and stabilization of infrastructure. This includes lifting sunken structures such as warehouse floors, back into place.

Seawall Repair Network® is the only national network of certified contractors in the repair, preservation, and protection of Seawalls waterfront barriers. Its proprietary methods and materials are environmentally friendly and safe for use in all marine environments and provide a non-destructive solution for seawall repair at 80% less than the cost of replacement.

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