



## Eroding Soil Could Lead to Cave In Underneath Busy Intersection

County inspectors found a depression in the road due to an underground sewer line that wasn't sealed at a heavily trafficked roadway intersection in Orange County, Florida. Water and eroding soil were infiltrating the sewer line causing the road to slowly settle. The resulting voids around the drainage structures had the potential to grow larger, eventually resulting in a complete cave-in of the roadway. In this particular case, there was a patch of asphalt 12' x 25' that was settling and officials feared a cave-in would occur. A point repair was done from within the leaky pipe to stop the infiltration but they feared it was only a matter of time before the road gave way. It was going to be very difficult and inconvenient to dig up this roadway, fill the void, re-compact, and re-pave due to the high volume of traffic, the adjoining rail crossing, as well as several major utilities running through the area. Not to mention that the area would have to be completely shut down to accommodate all of the equipment required for such a repair.



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### Powerful Polymers

Orange County approached Alchemy-Spetecs to see if we could come up with a powerful, painless and rapid solution using chemical grouting to fill the voids and stabilize the roadway. We devised a solution for them using the versatility of AP Fill 700 as both a permeation and void filling grout.

### Physical Properties - Cured

AP FILL 700		
Tensile Strength	(ASTM D-1623)	45 psi (3,102 mb)
Tensile Elongation	(ASTM D-1623)	2.9%
Shrinkage	(ASTM D-1042/D-756)	Negligible
Compressive Strength (with fine sand)	(ASTM C-39)	2,050 psi (141,343 mb)
Pre-activated mix viscosity	110 -130 cP	

Properties will vary depending on application conditions.

### **Painless Procedure**

We advised their crew to lay out a grid on the settling asphalt area and set up injection points to drive pipes down to the 13' depth where leaking had occurred and where the loose soil zone was located. They monitored the pipes while injecting material at a rate of 2 gallons per vertical foot through the open manhole to identify additional leaks that had been missed during the first point repair. As expected when foam was observed coming in through a leaking joint it quickly sealed off the leak at the same time it was stabilizing the soil.

### **Rapid Result**

To keep the lane closure down to a bare minimum of time, the project was successfully completed on two separate Saturdays. The voids were filled, the loose soil was solidified, and now only minor asphalt patching will be required to make that area smooth for traffic again.

### **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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