

PolyLevel® 400 Hydrophobic

Project: I70 and I270 Bridge Approaches
Location: St. Louis County, Missouri
Date: November 2015

Challenge:

A series of bridge rehabilitations were scheduled on the Interstate interchange connecting East and West bound I-70 traffic to North and South Bound I-270 traffic. Prior to and during the project, voids were detected and it was determined that both approach slabs on seven bridges required void filling to stabilize them and prevent future settlement. Because this area is among the heaviest traveled sections of interstate in the entire state, repairs could only be completed between the hours of 10:00pm and 4:00am and traffic flow would have to be maintained in all directions.

Solution:

As the Prime Contractor, Millstone Weber selected Foundation Supportworks by Woods to provide the material and installation in compliance with guidelines set forth in MODOT Section 625. Foundation Supportworks by Woods selected PolyLevel® 400 Hydrophobic (PL-400H) to use on this project. PL-400H is a two-part, hydrophobic urethane that cures in to a rigid foam used to lift and stabilize slabs as well as fill voids. The hydrophobic properties of PL-400H made it ideal for this application as water was presumed to be present beneath the approach slabs. PL-400H is injected in liquid form through small 5/8" holes drilled in to road slabs enabling the material to flow in to small voids and gravel base layers before a chemical reaction expands the liquid urethane in to a strong, rapidly setting foam. Unlike cementitious grouts that can weigh more than 120 pounds per cubic foot (pcf), PL-400H has a typical in-place density between four and seven pcf which add virtually no stress to the supporting soils. In addition, PL-400H has a minimum compressive strength of 80 pounds per square inch (ASTM D1621) and is fully cured and ready for traffic even before the barricades can be removed.

Reaction beams equipped with dial gauges and digital levels were used to monitor any movement of the slabs. All seven bridges were completed in eight overnight shifts requiring 8,721 lbs. of PL-400H being injected in to 1,576 ports. A short video of this project can be viewed at <https://www.youtube.com/watch?v=9A6wYpirtms>

Project Summary

Project Owner: Missouri Department of Transportation MODOT
Prime Contractor: Bob Hofer of Millstone Weber
Certified Installer: Chris Blickenstaff / Woods Basement Systems
Products Installed: PolyLevel® 400H



Interstate 70 / 270 Interchange



5/8 inch injection holes drilled in to road slab



PolyLevel being injected in liquid form



Slab movement precisely monitored with dial gauges