

LaDOTD Preserves Mississippi River Bridge with Hydrodemolition and Latex Modified Concrete

By: Patrick Martens, PE

The Louisiana Department of Transportation and Development (LaDOTD) is administering one of their largest hydrodemolition/ Latex Modified Concrete (LMC) projects ever. The deck surface on the Vicksburg Bridge on I-20 over the Mississippi River, between Louisiana and Mississippi is undergoing a total surface restoration. The bridge is jointly owned by LaDOTD and the Mississippi Department of Transportation (MDOT), but Louisiana serves as the lead agency for inspection and construction activities related to the bridge project.



Hydro-Technologies performs hydrodemolition surface prep

OCCI, Inc., in Fulton, MO, is the prime contractor for the project, that includes not just the surface work, but major structural repairs and an overhaul of the electrical system on the bridge. American Contracting Services, Inc. (ACSI) is subcontracted to do the bridge deck rehab portion of the project. This includes 65,000 square yards of hydrodemolition preparation and associated deck repairs, on the 2-mile long bridge. Hydro-Technologies, Inc. is performing the hydrodemolition work on the project.

The work actually started up late in January on the left, westbound lane of I-20. Due to inclement weather throughout much of February, progress

was limited, but it is now picking up momentum as the weather warms and improves. One phase of the four stages of construction has now been completed, and phase two is progressing in the right, westbound lane.

This project is employing a combination of milling and a 1/2" Fast Track hydrodemolition cut to selectively remove a minimum depth plus any deteriorated concrete in the deck surface. The milling is key in prepping the surface and removing an initial layer of the concrete, to expedite the process and open up the surface. After 1" of milling, hydrodemolition is used to get the final 1/2" of removal, eliminating any microfractures left in the top surface. It also selectively removes deteriorated areas of concrete, taking the jackhammers out of the deck repair. The hydrodemolition also serves to prep the existing concrete surface to receive the new concrete overlay. The minimum removal depth is 1 1/2" but



Fast Track method provides a selective removal of concrete

deeper where the more deteriorated areas of the deck are encountered.



ACSI installing LMC inlay

Hydrodemolition is accomplished by using a self-propelled, programmable robot that uses a high pressure waterjet to cut out the remaining deteriorated concrete from the deck, while also roughening the remaining surface, and providing a very etched and bondable profile. The profile provides plenty of bondable surface area for the overlay to grab to. The waterjet will run in the neighborhood of about 15,000 psi to gain the selective removal, for this particular project.

An inlay of a minimum of 1-1/2" of LMC is going back down as the finished surface. That will include in the neighborhood of 3000 cubic yards of LMC. The roughness of the hydrodemolished deck will help promote a strong monolithic bond between the new concrete and the old, so that overlay and deck will act as one unit. The LMC surface should give a good 25 or more years of extended

Continued on back

Continued from front

service life to the bridge deck and provide long term deck protection.

The job is scheduled for completion later in 2020.



Finished surface should provide 25+ year service life and protection to deck.

FOR MORE INFORMATION ON HOW TO PRESERVE YOUR STRUCTURES WITH THE
FAST TRACK METHOD OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE,
CONTACT PAT MARTENS AT 636-441-1376, OR PMARTENS@BRIDGEPRESERVATION.NET.
ASK ABOUT A LUNCH AND LEARN!



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