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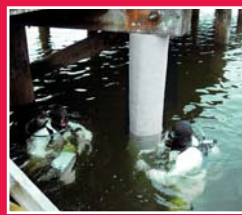
Transportation



Buildings



Pipelines



Waterfront



Industry



Beam Enhancement of the Capalle Motorway Bridge,

Capalle, Campi Bisenzio, Firenze, Italy

In 2009, the access bridge connected with the bridge upon the Marina river on Einstein street has been damaged by a collision with a vehicle that was circulating on the road underneath. The impact caused damage to one of the six bridge's spans and obliged the Authority (Comune di Campi Bisenzio, Italy) to modify the car traffic, not allowing heavy vehicles to transit on the bridge in order not to overload the damaged part of the superstructure.

The municipality did not pursue the solution that consisted in the partial demolition of half of the bridge and its subsequent reconstruction due to the considerable cost of this intervention. Moreover, the construction of a new bridge, considered as an option by the land reclamation authority in order to overcome the actual hydraulic restriction, would have required an elongation of the time schedule before fully restoring the traffic and serious loss for the commercial activities nearby.

The present municipality has carried out a new study on the possible solutions for the bridge, seeking for cost effective solutions that would allow retrofitting the structure in a reasonable amount of time. Fibrwrap Italia proposed an innovative solution that consists in applying fiber reinforced polymer (FRP) fabric, specifically Tyfo® SCH-41, so as to restore and enhance the initial flexural and shear capacity. After the required loading test, the bridge has been finally re-opened to traffic in both directions.

Project: Beam Enhancement of the Capalle Motorway Bridge

Location: Capalle, Campi Bisenzio, Firenze, Italy

Client: Comune di Campi Bisenzio (Firenze, Italy).

Contract Duration: 4 weeks.

Scope of Works:

- Restoring of the flexural and shear capacity of the bridge superstructure;
- Removal of the damaged concrete, substitution of the deformed reinforcing bars, creation of the formwork and pouring of the mortar where the concrete has been removed;
- Enhancement of the flexural and shear capacity through the application of FRP System, Tyfo® SCH-41 with Tyfo® S Epoxy.



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