Bridge Deck Waterproofing

Product in Action

SR 109 Arch Bridge . Dedham . MA . USA

Client: MASSACHUSETTS HIGHWAY DEPARTMENT
Authorised Contractor: CHAPMAN WATERPROOFING INC.

Preserving Aesthetic Character

Route 109 is a heavily trafficked road crossing the Charles River at Dedham, to the south of Boston, MA. The bridge is a graceful stone arch structure designed for much lighter traffic loads. To cope with both the existing and anticipated traffic, Mass Highway widened and strengthened the bridge while preserving its aesthetic character. To do this, new concrete spans were built following the profile of the original structure to either side of the bridge and the original stone arches strengthened also with reinforced concrete.

Mass Highway selected the Eliminator waterproofing membrane for application over the 2,743m^2 of new concrete. Eliminator has an unparalleled track record of long-tem performance on roads and railways.

And, being spray-applied, it could be applied to all profiles and orientations of the structure without the need for the complicated detailing and joints that would be required with sheet systems. It also retains very high adhesion to the concrete, preventing any tracking of water between membrane and deck.

The new bridge design also necessitated backfilling of the arch profiles over the Eliminator with compacted gravel, which could have damaged and punctured many waterproofing systems. By contrast, Eliminator is so tough that it is used successfully on railroads directly under track ballast due to its outstanding durability.

Minimising Traffic Disruption

Traffic loads were such that the closure of any lanes due to pavement or structural issues would cause severe disruption to traffic. Eliminator's rapid installation and cure taking full loads after just one hour meant this disruption was reduced to a minimum. Also it can be applied across a very wide temperature range including below freezing and its cure is unaffected by moisture.

The membrane is applied in two colourcoded coats, with a cure that permits thickness monitoring without slowing the speed of cure, minimising the risk of pinholing through the seamless membrane, a characteristic of some other systems. Following the completion of the structural and waterproofing works, both faces of the structure were then finished in stone complimenting that of the original bridge.

The bridge is now able to serve travelers on Route 109 for many years to come with the minimum of disruption.

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