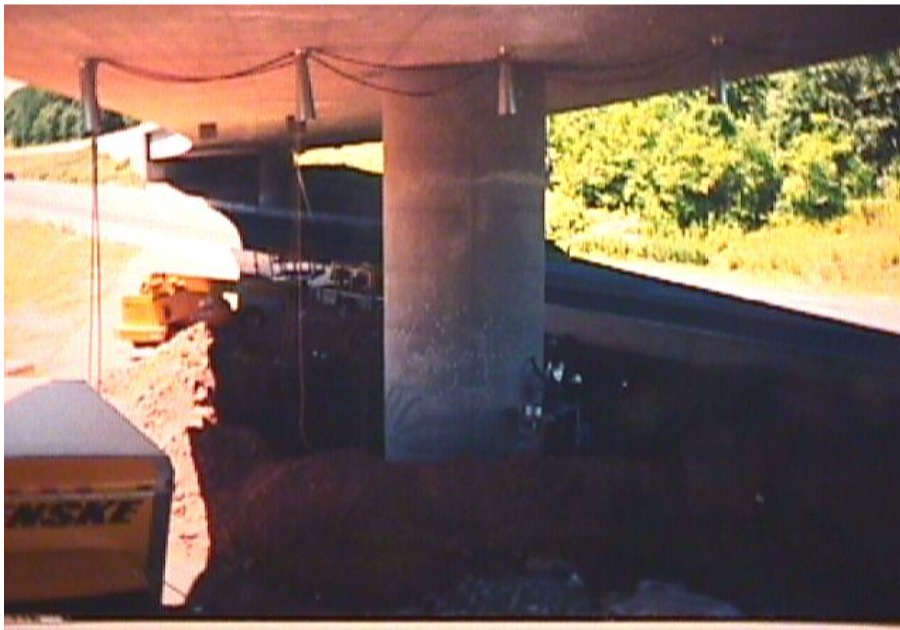


Connecticut DOT Repairs I-84 Pier Cap

After detecting serious cracking on a number of I-84 pier caps the Connecticut Department of Transportation sought a means of completely filling the fractures and voids.



The massive pier caps were eight feet high, thirty five feet wide and fourteen feet thick connecting five cells of the structure.

Observation inside the cells revealed the failure of previous pressure injection efforts.

This created a problem that most would agree has no apparent resolve. Failed epoxy, or insufficient fill of epoxy in individual fractures is something one is stuck with when discovered. Epoxy will not stick to epoxy

which, when attempted, yields a construction joint and point of inevitable failure.

Notwithstanding, previous attempts fouled the mouth and fracture zone, seemingly prohibiting any hope of re-injection of the cracks.

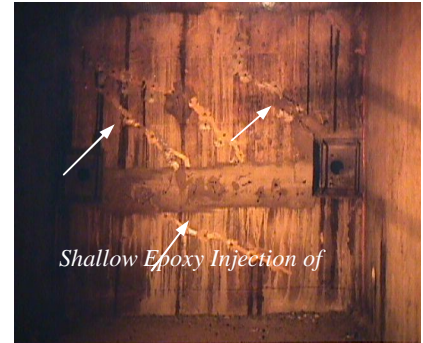
Vacuum injection proves to be the answer

Technicians drilled behind the unsuccessful pressure injection and intersected the fracture zone.

The existing epoxy seal, that had been left in place was inspected and all unbonded lengths were sealed. A special methodology of testing the length and extent of the cracking was employed on each individual crack in the pier cap prior to beginning the injection.

It was confirmed with Connecticut DOT that the previous injection of the cracks was at best marginal with penetration depths ranging from 1/4" to 6".

Final preparation of the vacuum injection of the pier caps was begun. This preparation included the continuity audit of the existing cracks to determine the expected filling.

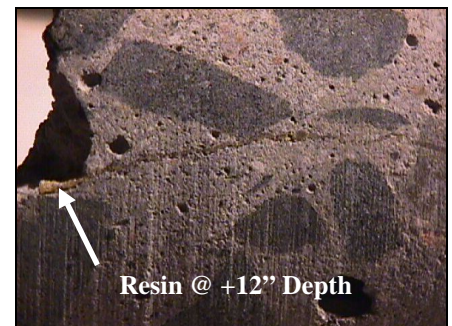


Of the five cells, two promised installation of new repair materials across the entire 14' thickness of the cap.

Upon beginning the injection of the first cell, the extent of the void areas began to develop. The first cell to be injected took in excess of 60 gallons of the low viscosity repair resin before reaching refusal.

In all, the single pier cap was permeated with some 200 gallons of repair resins. In one of the cells, technicians successfully pulled resins through the entire thickness of the cap, some 14'.

Despite the surprising condition,



previous failed attempts, confined space restraints and complicated access coordination this was a difficult job well done.