

OFFICE MEMORANDUM



MICHIGAN
STATE HIGHWAY DEPARTMENT

R-564

December 30, 1965

To: E. A. Finney, Director
Research Laboratory Division

From: R. H. Merrill

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Subject: Second Annual Inspection of Bridge Decks Sealed with "EpoXeal" and "Concrete Sealer." Research Projects 63 NM-83 and 63 NM-92. Research Report No. R-564.

In November 1963, certain Lansing area bridge decks received applications of "EpoXeal," a penetrating epoxy produced by the Protective Products Corp. of Gulfport, Miss., and "Concrete Sealer," a blend of tar and solvents produced by the Koppers Co., Inc., of Pittsburgh, Pa. These products were applied in a field experiment to determine their ability to seal new concrete against water and brine, thereby reducing its deterioration. Research Reports Nos. R-476 and R-477 were issued on September 22, 1964, to describe application of the materials and the first inspection of the structures. This report covers an inspection of October 18, 1965, after the sealed decks had been exposed through two fairly mild winters, and is submitted for information of the Committee for Investigation of New Materials.

Westbound I 96 over Canal Road, Southwest of Lansing (S07 of 23152)

The north span and half the center span were sealed with EpoXeal, and the south span and rest of the center span left uncoated for control purposes. No sign of the seal coat was found in traffic areas during the second inspection, except where cracks had been given an extra brush coat. The seal was still clearly visible on walks and curbs. There was some light pitting in the east gutter in both sections, probably due to standing water. Cracks through the center span deck showed leaching on the underside in both sections, indicating that epoxy had not been effective in sealing them. Since both sections were in generally good condition, no specific evaluation of the sealer can be made at this time.

Northbound I 496 over the Grand Trunk Railroad (X06 of 33045)

This three-span structure was used for a comparative field test of EpoXeal applied to the north span and Concrete Sealer on the south span, with the center span left uncoated as a control. The EpoXeal span had no surface deterioration except along the east gutter where surface laitance (deposited when walks were poured) was scaling off. No trace of the seal coat was noticeable in the traffic areas. The central or control span showed signs of deterioration in the east exit lane, with definite loss

of mortar over larger aggregate toward the south end of this lane. Whether this condition is progressive will be determined in future inspections. The span sealed with Koppers' material, which has now bleached to a light shade of grey, is in excellent condition, without surface deterioration. This sealer has worn off in most traffic areas, but is intact on curbs and gutters.

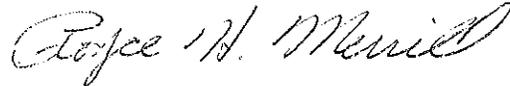
Six I 496 Structures (B01 and B02 of 33171; X03, X04, X05, and X07 of 33045)

These decks were coated with EpoXeal for initial winter protection, on verbal authorization from J. E. Meyer to R. L. Greenman as described in Research Report No. R-476. All these structures, for which there are no counterpart control bridges, are in excellent condition with only scattered pitting in gutters, probably due to standing water and deicing salts.

Summary

Since uncoated control sections are in about the same condition as coated areas on these structures, no conclusions regarding the merits of the sealers are possible at this time. Further annual inspections will be conducted until definite conclusions can be drawn.

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