

MICHIGAN
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EXPERIMENTAL RESEALING OF JOINTS ON M-83,
FIRST CONDITION SURVEY

Saginaw County, Projects 73-25, C3 and 4

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Cooperative Research Between the Maintenance Division
and the Testing and Research Division

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The experimental resealing project on M-83 south of Frankenmuth was surveyed on April 20, 1955 to determine the condition of the resealed joints and cracks after six months of service. The resealing had been done during August, September and October of 1954 under normal maintenance procedure. This work was described in Report No. 218, January 10, 1955.

Brand A sealer, a rubber-asphalt product, was in very good condition with the seal intact in most of the transverse joints containing this material, Figure 1-A. In a few of the transverse joints containing Brand A there was some adhesion loss to one face of the joint, Figure 1-B. Open cracks containing Brand A sealer were all perfectly sealed with no losses in adhesion or cohesion, Figure 1-C.

There was considerable adhesion failure in transverse joints containing Brand B sealer, SOA asphalt, but the cohesive failure was not excessive, Figure 2.

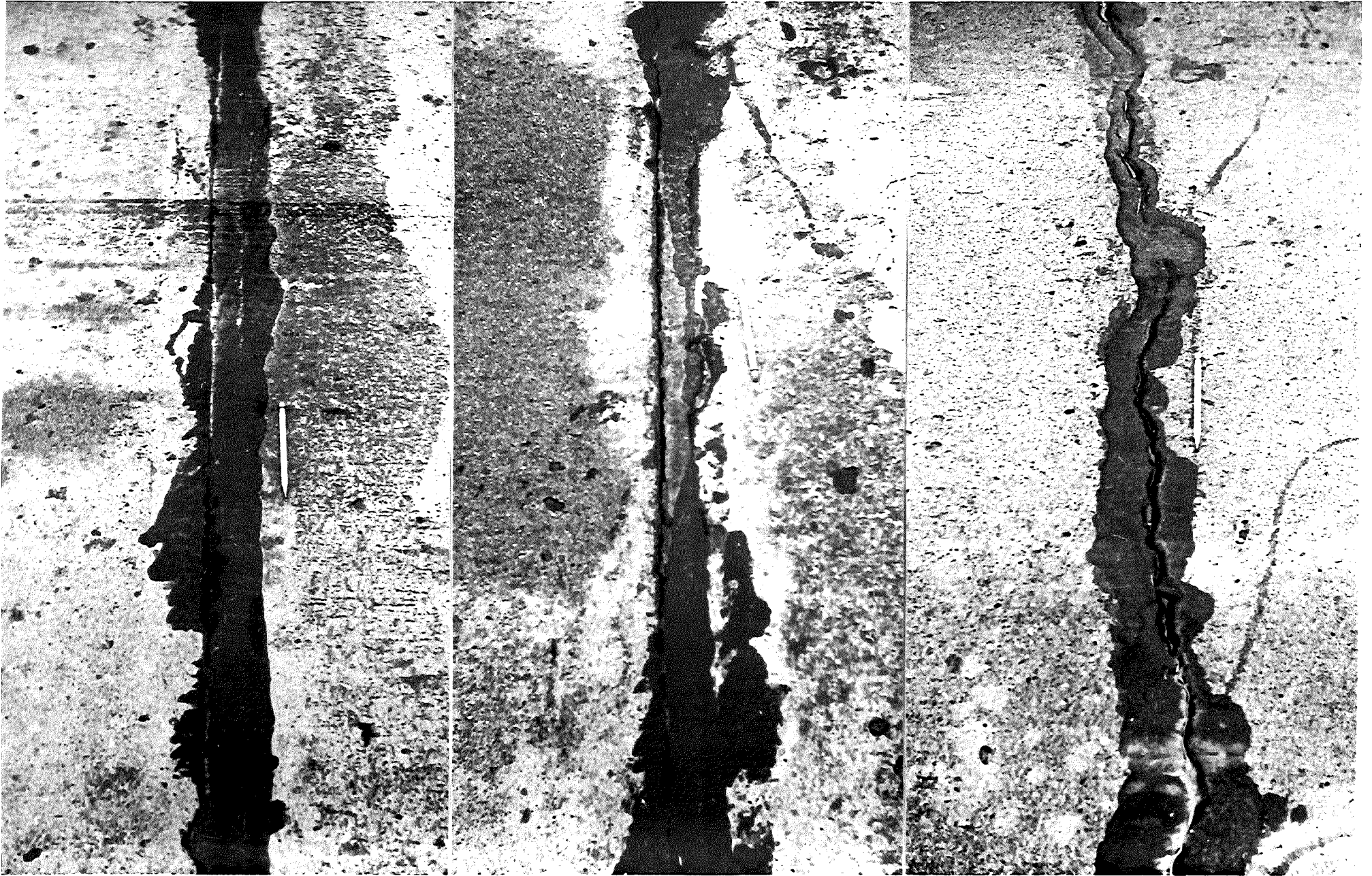
Brand C sealer, a non-rubber petroleum resin, showed both adhesion and cohesion failures in about half of the transverse joints, Figure 3-A, with at least some adhesion failure in all the transverse joints containing this material, Figure 3-B. This sealer had failed badly in open cracks with a large percentage of it missing at the time of survey, Figure 3-C.

Brands D and E, both catalytic asphalts, had failed badly in transverse joints and open cracks with respect to both adhesion and cohesion, Figures 4 and 5.

All closed cracks were effectively sealed regardless of the brand of sealer used. Figures 4-B and 5-C indicate the effectiveness of the seal in closed cracks even with the two brands of sealer that failed the worst in other respects.

The entire longitudinal joint also maintained an effective seal regardless of material used.

The results of this study so far indicates the superiority of the rubber-asphalt material for this type of work.



▲ A. STATION 123+00. EXPANSION JOINT WITH SEAL INTACT.

▲ B. STATION 127+00. EXPANSION JOINT WITH SOME ADHESION FAILURE.

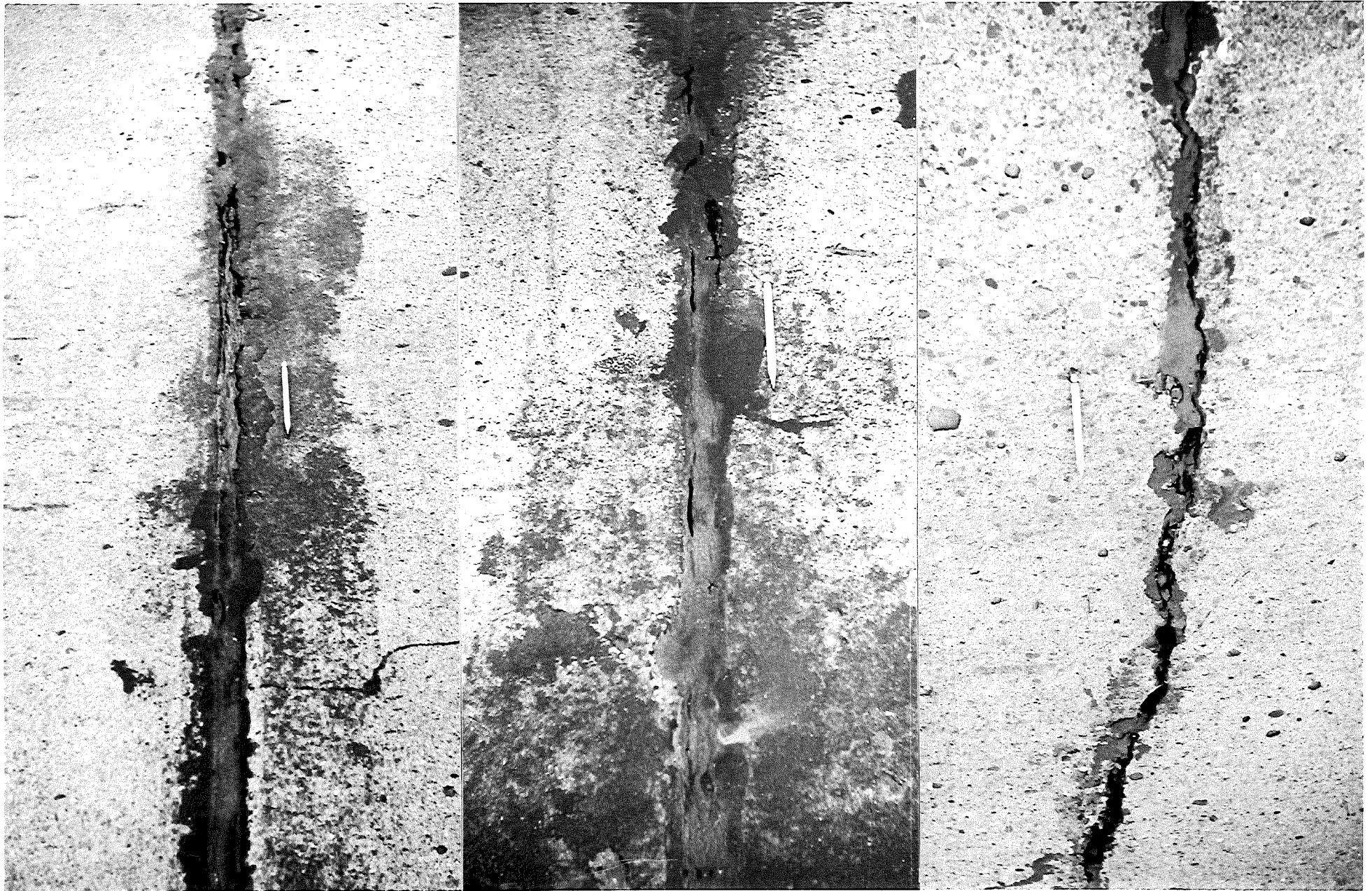
▲ C. STATION 231+40. OPEN CRACK WITH SEAL INTACT.

FIGURE 1. JOINTS AND CRACKS SEALED WITH BRAND A SEALER



▲ STATION 187+00. EXPANSION JOINT SEALED WITH
BRAND B. SEALER (SOA ASPHALT). COMPLETE ADHESION
FAILURE BUT NOT MUCH COHESION FAILURE.

FIGURE 2

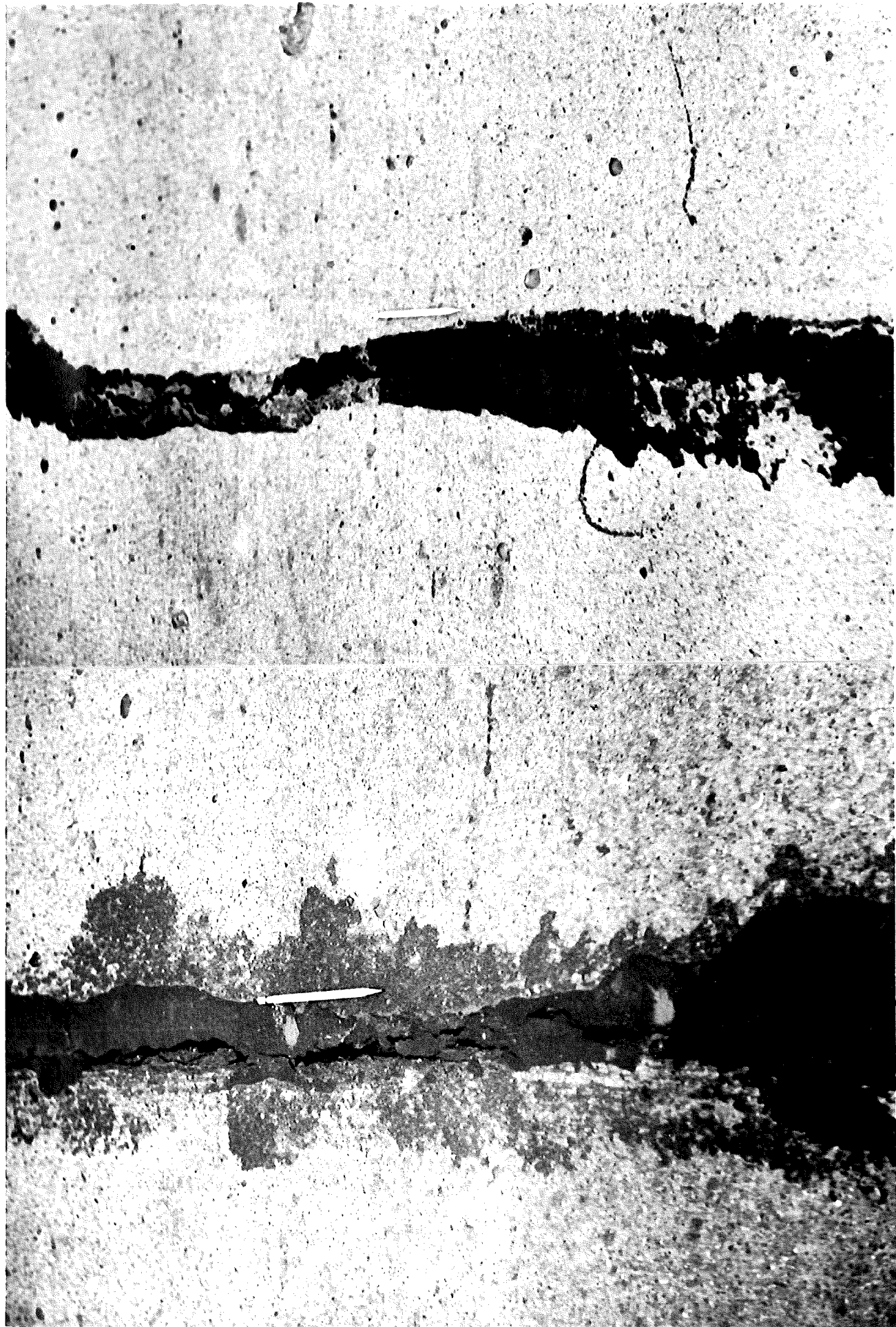


▲ A. STATION 26H+30. EXPANSION JOINT WITH SOME FAILURE IN ADHESION AND COHESION.

▲ B. STATION 262+45. CONTRACTION JOINT WITH SOME ADHESION FAILURE BUT NO COHESION FAILURE.

▲ C. STATION 25H+90. OPEN CRACK WITH MOST OF SEALER GONE FROM CRACK.

FIGURE 3. JOINTS AND CRACKS SEALED WITH BRAND C SEALER



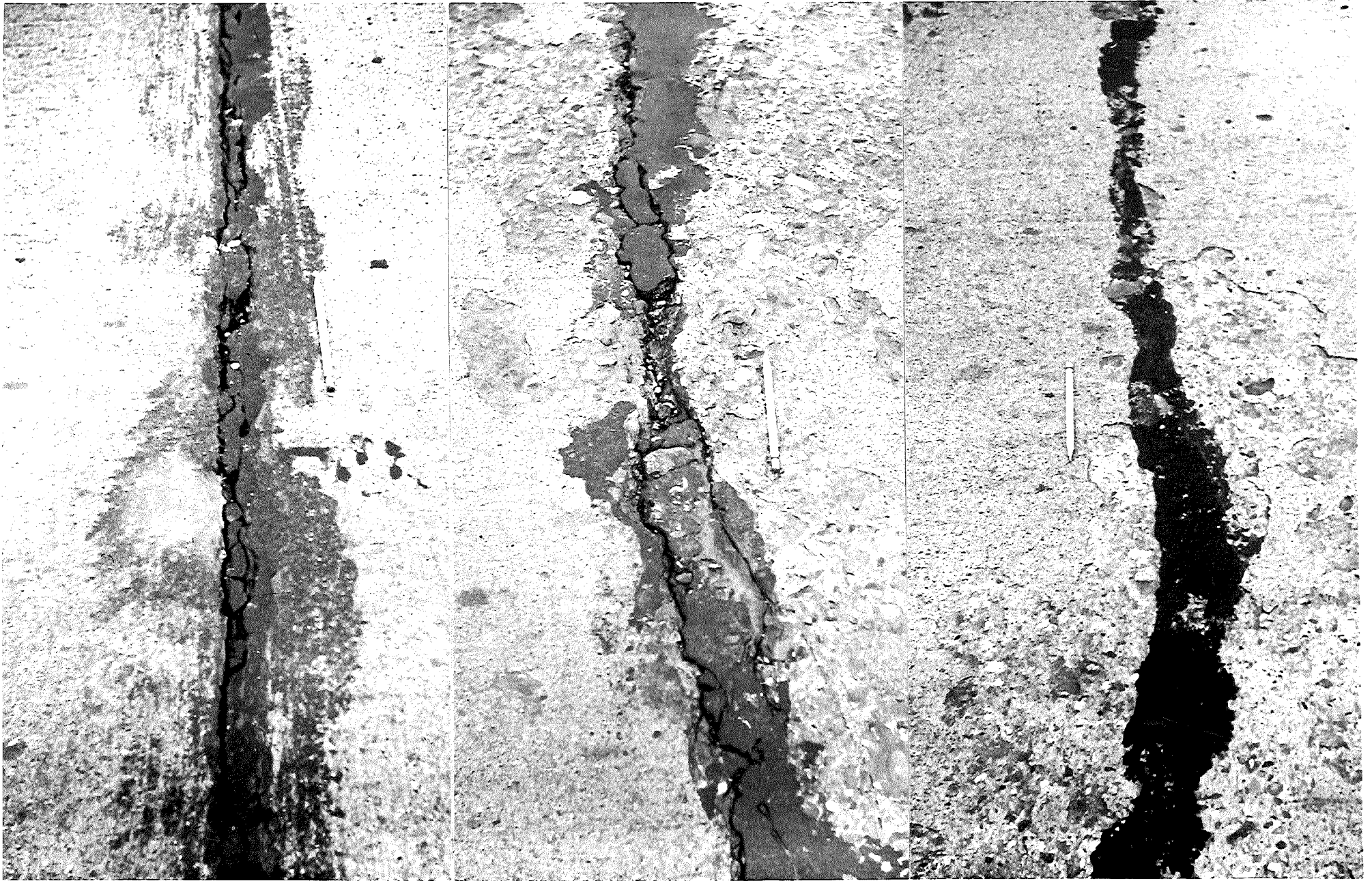
▲ FAILURE.

A. STATION 335+60. EXPANSION JOINT WITH ADHESION AND COHESION



B. STATION 335+15. CLOSED CRACK WITH SEALER INTACT.

FIGURE 4. JOINT AND CRACK SEALED WITH BRAND D.



▲ A. STATION 411+50. EXPANSION JOINT WITH ADHESION AND COHESION FAILURE.

▲ B. STATION 400+90. OPEN CRACK WITH SEALER PARTIALLY GONE FROM CRACK.

▲ C. STATION 399+90. CLOSED CRACK WITH SEALER INTACT.

FIGURE 5. JOINTS AND CRACKS SEALED WITH BRAND E MATERIAL.