TECHNICAL REPORT TITLE PAGE

1. REPORT NO.	2. REPORT DATE
MLR-90-2	April 1992

3. TITLE AND SUBTITLE	4. TYPE OF REPORT & PERIOD COVERED
Evaluation of Asphalt Mix Permeability	Final Report April 1992

5. AUTHOR(S)	6. PERFORMING ORGANIZATION ADDRESS
Roderick W. Monroe Bituminous Engineer	Iowa Department of Transportation Materials Department 800 Lincoln Way Ames, Iowa 50010

7. ACKNOWLEDGEMENT OF COOPERATING ORGANIZATIONS

8. ABSTRACT

Efforts to eliminate rutting on the Interstate system have resulted in 3/4" aggregate mixes, with 75 blow Marshall, 85% crushed aggregate mix designs. On a few of these projects paved in 1988-1989, water has appeared on the surfaces. Some conclusions have been reached by visual on-sight investigations that the water is coming from surface water, rain and melting snow gaining entry into the surface asphalt mixture, then coming back out in selected areas. Cores were taken from several Interstate projects and tested for permeability to investigate the surface water theory that supposedly happens with only the 3/4" mixtures. All cores were of asphalt overlays over portland cement concrete, except for the Clarke County project which is full depth AC.

The testing consisted of densities, permeabilities, voids by high pressure airmeter (HPAM), extraction, gradations, A.C. content and film thicknesses. Resilient modulus, indirect tensile and retained strengths after freeze/thaw were also done. All of the test results are about as expected. Permeabilities, the main reason for testing, ranged from 0.00 to 2.67 ft. per day and averages less than 1/2 ft. per day if the following two tests are disregarded.

One test on each binder course came out to 15.24 ft/day, and a surface course at 13.78 ft/day but are not out of supposedly problem projects.

9. KEY WORDS	10. NO. OF PAGES
Rutting, Permeability, Voids	36