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15. Abstract <p>The Oklahoma Department of Transportation plans to replace more than 120 box culverts located on Interstate Systems, National Highway Systems, and State Transportation Systems. Severe scour and erosion problems are observed around and downstream of box culverts. This report presents two simultaneous efforts of laboratory analyses and analytical tools using softwares applicable to box culverts.</p> <p>A review of literature indicates that a research program was made in both laboratory analysis and software development over the last twenty years. However, the laboratory data collection and analysis did not focus on analyzing the box culvert problems. It pertained to individual pieces of hydraulics of drop structures and hydraulic jump. The effort on software development is more recent, in less than past ten years. This report includes a review of detailed data analysis and three softwares developed by the Federal Highway Administration, the Nebraska Department of Roads, and the Iowa Department of Transportation.</p>			
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