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16. Abstract <p>This report describes results from a study evaluating the use of stringless paving using a combination of global positioning and laser technologies. CMI and Geologic Computer Systems developed this technology and successfully implemented it on construction earthmoving and grading projects. Concrete paving is a new area for considering this technology. Fred Carlson Co. agreed to test the stringless paving technology on two challenging concrete paving projects located in Washington County, Iowa.</p> <p>The evaluation was conducted on two paving projects in Washington County, Iowa, during the summer of 2003. The research team from Iowa State University monitored the guidance and elevation conformance to the original design. They employed a combination of physical depth checks, surface location and elevation surveys, concrete yield checks, and physical survey of the control stakes and string line elevations. A final check on profile of the pavement surface was accomplished by the use of the Iowa Department of Transportation Light Weight Surface Analyzer (LISA). Due to the speed of paving and the rapid changes in terrain, the laser technology was abandoned for this project. Total control of the guidance and elevation controls on the slip-form paver were moved from string line to global positioning systems (GPS).</p> <p>The evaluation was a success, and the results indicate that GPS control is feasible and approaching the desired goals of guidance and profile control with the use of three dimensional design models. Further enhancements are needed in the physical features of the slip-form paver oil system controls and in the computer program for controlling elevation.</p>			
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