

**TECHNICAL REPORT DOCUMENTATION PAGE**

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<b>15. SUPPLEMENTARY NOTES</b>		<b>13. TYPE OF REPORT AND PERIOD COVERED</b> Final Report October 2008 – December 2010	
<b>16. ABSTRACT</b> <p>The addition of lime stabilizers can create problems in soils containing sulfates. In most cases, lime is mixed with expansive soils rendering them non-expansive; however, when a certain amount of sulfate is present naturally in expansive soils, the lime reacts with gypsum to create an expansive mineral ettringite and causes the soil to become more expansive.</p> <p>The goal of this study was to provide a more accurate sulfate determination method and determine the physical, chemical, and mineralogical characteristics of Oklahoma soils that may predict vulnerability to adverse reactions from calcium-based stabilizers and attempt to relate these characteristics to free swell. Through this project, it was found that the current method of testing soil sulfate, Oklahoma Highway Department's (OHD) L-49, resulted in substantial sulfate solubility issues and did not in all cases accurately determine sulfate concentrations in soils. Several bench studies were performed to understand the solubility problems and modifications were proposed.</p>		<b>14. SPONSORING AGENCY CODE</b>	
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