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Large Strain Consolidation Stochastic Finite Element Method for Soft-clay Road Embankment Analysis

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Summary

This paper presents a method for the large strain consolidation analysis of soft-clay road embankment with stochastic parameters to random excitation. Based on the large strain theory of continuum material, Biot consolidation theory and Neumann stochastic finite element method (NSFEM), the large strain consolidation NSFEM (LSC-NSFEM) has been established. A program of LSC-NSFEM is designed to analyze soft-clay road embankment. The residue iteration method is used to deal with the nonlinear fluctuating part of stiffness matrix, and the approximate algorithm of the fluctuating part of stiffness matrix is designed to improve LSC-NSFEM program efficiency.