

强夯法处理湿陷性黄土地基评价

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摘要 通过强夯法处理湿陷性黄土后的现场静载荷试验与静力触探原位测试数据对比分析, 得到强夯地基承载力特征值 f_{ak} 与静力触探锥尖阻力最小平均值 q_c 的关系式。在此基础上, 依据设计要求建立采用静力触探法定量评价强夯地基承载力的方法和标准, 利用静力触探原位测试数据对该强夯地基承载力进行定量评价, 发现强夯地基软弱层并确定软弱层区的分布范围。采用探井取土样及土工试验对该强夯地基湿陷性进行定量评价, 并发现2个探井中地基土剩余湿陷量较大; 分析软弱层的成因并采取石灰砂桩等补强处理措施, 消除强夯地基隐患。采用静力触探法, 依据承载力标准较精确地划分强夯有效加固深度和影响深度; 采用土工试验法, 按照消除湿陷性标准确定强夯有效加固深度, 发现两者确定的强夯有效加固深度存在差异。

关键词 [土力学](#); [强夯](#); [静载荷试验](#); [静力触探](#); [地基承载力特征值](#); [有效加固深度](#); [湿陷性黄土](#)

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EVALUATION OF COLLAPSIBLE LOESS SUBGRADE TREATED BY DYNAMIC COMPACTION

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Abstract

Through analyzing the data of the static loading tests(SLT) and the cone penetration tests(CPT), which are on the collapsible loess subgrade treated by dynamic compaction, the corresponding formulae of the characteristic value of dynamic subgrade bearing capacity f_{ak} and the minimum mean value of cone resistance q_c are obtained. Accordingly, after method and standard of quantitative evaluation of dynamic subgrade bearing capacity are established on the basis of design requirement, and the dynamic subgrade bearing capacity is quantitatively evaluated using the CPT. Weak layers are found and areas with weak layers are determined in the dynamic subgrade. The collapsibility of dynamic subgrade is quantitatively appraised by the test method of soil samples from the investigation wells, and larger remnant collapses are

found in 2 investigation wells in the dynamic subgrade. The cause of formation of weak layers is analyzed and lime piles are considered to eliminate the potential dangers in the areas with weak layers. Effective reinforcement depth and influencing depth after dynamic compaction are accurately decided using the CPT on the basis of subgrade bearing capacity standards, the effective reinforcement depth after dynamic compaction is also decided using soil test method on the basis of remnant collapse standards, and the difference of effective reinforcement depths between both methods is found.

Key words

[soil mechanics](#); [dynamic compaction](#); [static loading test\(SLT\)](#); [cone penetration test \(CPT\)](#); [characteristic value of subgrade bearing capacity](#); [effective reinforcement depth](#); [collapsible loess](#)

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