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斜坡稳定性与地质灾害

关于物理潜蚀作用及其概念模型的讨论

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摘要:

在对国内外物理潜蚀作用相关文献进行调研的基础上回顾了潜蚀作用的研究历史,对目前物理潜蚀作用研究中存在的问题进行了总结。指出潜蚀工程地质问题在各类工程建设活动中已经变得越来越突出,但由于潜蚀作用发生环境的多样性、作用方式的复杂性、发生过程的随机性等原因,造成实际应用中将各种潜蚀作用尤其是物理潜蚀作用过程的概念经常混淆。对"管涌"、"渗透压密"、"接触管涌"、"接触冲刷"、"流土"、"突涌"、"接触流土"、"流砂"、"流滑"等物理潜蚀作用的发生机理进行了深入细致的分析,在此基础上对目前一些界定不严格的物理潜蚀相关概念进行了辨析和澄清,初步建立了清晰的物理潜蚀作用概念模型,为潜蚀工程地质进一步研究奠定了基础。

关键词: 物理潜蚀 管涌 渗透 冲刷 流土 突涌 流砂 概念模型

ESTABLISHMENT OF CONCEPTUAL MODELS OF PHYSICAL SUB-GROUND EROSION

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Abstract:

Based on the extensively literature review,this paper summarizes the main issues in the research work of physical sub-ground erosion. The ppaer points out that the engineering geological problems related to the physical sub-ground erosion become more and more serious with the development of various construction projects. However,resulting from the multiplicity,complexity and randomness of the physical sub-ground erosion process,some concepts related to the physical sub-ground erosion are still confusing because of the wrongly or inaccuracy defination,which makes it difficult to academic exchanges.By analyzing of the mechanism,the precise conceptual models of"piping","seepage compression","contact piping","soil flowing","soil bursting","contact soil flowing","flowing sand"and"flow solids"are established in this paper,which forms an essential bases of the further research work on the sub-ground erosion.

Keywords: Physical sub-ground erosion Piping Infiltration Scouring Soil flowing Soil bursting Flowing sand Conceptual model

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