

Should collapsible loess be considered in Foundation treatments?

Most regions in Western China are collapsible loess areas, and the collapsibility characteristics of loess are extremely unfavorable to foundation treatments. Therefore, the engineering properties of collapsible loess should be fully considered in foundation treatments, and corresponding treatment measures should be taken.

Can loess collapsibility be predicted faster and accurately?

To evaluate the collapsibility of loess faster and accurately, 300 loess collapsibility test data along the high-speed railway section from Baoji to Lanzhou were collected, and develop a direct prediction model for loess collapsibility parameters (see Fig. 1).

What is the prediction model of the loess collapsibility coefficient?

The prediction model of the loess collapsibility coefficient based on water content, dry density, initial porosity ratio, and pressure was developed. The main findings are summarized as follows: As the p increased, the ds experienced a rapid increase and then gradually stabilized, forming a hyperbolic function relationship.

Can geotechnical engineering models predict loess collapsibility?

The loess collapsibility data were provided from the Baoji to Lanzhou high-speed railway. The three ML algorithms are representative of geotechnical engineering modeling and are rarely explored for predicting loess collapsibility.

Which factors affect loess collapsibility in LV Liang area?

Water contents, dry densities, pressure levels and elevations of samples are determined to be statistically significant factors which affect the loess collapsibility. All regions in Lv Liang area are at risk of high collapsibility with average around 0.03, out of which roughly a third of them are predicted to be at high risk.

What is the collapse potential of loess?

The collapse potential of loess are often categorised into the following intervals: $(0, 0.015]$, $(0.015, 0.03]$, $(0.03, 0.07]$ and $(0.07, 1]$. Each of these indicates non-collapsible, weakly collapsible, moderately collapsible and strongly collapsible respectively according to Ref. 56.

Collapsible and non-collapsible loess are discriminated in the Chinese context, a coefficient of collapsibility 0.015 indicating the latter condition. Experiments designed to elucidate the ...

The new method provides a simple and feasible means by which to correctly and quickly evaluate site collapsibility in loess engineering, which is beneficial for conducting loess ...

On this basis, a prediction model for loess collapsible deformation was established with four indexes of water ...

content, dry density, initial porosity ratio and pressure as characteristic ...

At present, there are many ways to deal with the foundation in the collapsible loess area. It can detect the ground treatment results in an all-round way. This paper combines the actual ...

collapsible loess was determined to be 64.24 kPa, the internal friction angle was 25.45° ; the compression coefficient was 0.43 MPa \cdot s⁻¹, and the compression modulus was 4.75 MPa (Ta- ...

Table 4 indicates that for site 1, the traditional indoor average D_{zs} is 330.3 mm larger than the field-measured D_{zs} , which leads to misjudgment of the loess foundation ...

It is of great importance to study the behavior of loess moisture infiltration based on the loess permeability velocity to prevent geological disasters by loess collapsibility and get ...

This paper analyses the foundation treatment, pile foundation optimization design of the towering structure in collapsible loess areas, provide technical support for the ...

Dynamic compaction, also called dynamic consolidation method, is known for its advantages of significant reinforcement effect, simplicity and economic efficiency, is one of the ...

More and more photovoltaic brackets (PVB) were built in collapsible loess areas with the wide application of solar energy, and the problem of damage of PVB due to the settlement of...

test results, the proportion of collapsible loess samples is 65.5%. Most of the collapsible loess is self-weight collapsible loess, and the collapsibility is mostly medium to strong, which cannot ...

Loess is a widely distributed soil in northwestern China and most of loess is sensitive to collapse if it is soaked into water. Between 1974 and 1975, it was reported there ...

Collapsible loess tunnel foundation reinforcement is a new challenge in the construction process of tunnel engineering. According to the field displacement and stress monitoring of the Fujiayao ...

Collapsible loess and loessial soils are unsaturated and underconsolidated, having macro pores and vertical fissures. At its natural water content, its compressibility is rather low and its ...

The bearing and deformation characteristics of embankments with rigid-flexible long-short pile composite foundations (RLPCFs) in thick collapsible loess strata are not yet ...

foundation pits in collapsible loess areas requires effective and stable support to ensure the safety of construction projects and the normal service performance of existing projects [2,3,4]. In ...



Photovoltaic support foundation of collapsible loess

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