

How to prevent hole collapse in pile foundation construction?

Due to the effect of blasting impact, hole collapse can easily occur in the hole-forming stage of pile foundation construction. In order to prevent hole collapse, it is very necessary to evaluate the stability of a pile hole wall before pile foundation construction.

Can blasting impact cause a hole forming stage of pile foundation construction?

Authors to whom correspondence should be addressed. Blasting impact load may be encountered during the construction of some pile foundation projects. Due to the effect of blasting impact, hole collapse can easily occur in the hole-forming stage of pile foundation construction.

How to prevent hole collapse?

In order to prevent hole collapse, it is very necessary to evaluate the stability of a pile hole wall before pile foundation construction. The calculation of hole collapse can usually be attributed to an axisymmetric circular hole stress concentration problem.

How high should a pile be for a photovoltaic plant?

In any case, for the types of piles that are being used in the foundations of photovoltaic plants, it is recommended that the height of load application will be in order of 1,0 m and in no case exceeding 1,5 m.

What is a pile foundation?

A pile foundation is a deep foundation type widely used for complex geologic conditions and various load conditions, especially for soft soil foundation. It has a large bearing capacity, good stability, and small differential settlement compared to other foundation types.

What causes a pile foundation to fail?

Integrity test results reveal that improper bulb formation and shorter as-built length than the designed are the leading causes of failure. Different performance criteria (uplift, compressive, and lateral capacities) of the in-service pile foundation are estimated through extensive finite element analysis and conventional approaches.

Keywords: photovoltaic plant, load test, foundation, metallic pile, traction, compression, lateral load, pull out test, jacking. Summary: Foundations projected for photovoltaic plants resist ...

In order to prevent hole collapse, it is very necessary to evaluate the stability of a pile hole wall before pile foundation construction. The calculation of hole collapse can usually be attributed to an axisymmetric circular hole ...

THE DESIGN OF FOUNDATIONS WITH METALLIC PILES IN PHOTOVOLTAIC POWER PLANTS

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Photovoltaic array foundations mainly include concrete embedded parts foundations, concrete counterweight block foundations, spiral ground pile foundations, directly embedded foundations,...

This paper proposes the structural design and calculation model of stepped three-row pile and verifies its antioverturning and antisliding stability, based on the Xinghe Yabao deep foundation pit project in Shenzhen, China. The three-row pile model is constructed using finite element software, and the force and deformation of the piles are analyzed. The influence of the ...

Pile foundations penetrate the support soil and use friction forces between the side of the pile and the soil and/or end bearing between the soil and its toe to support the required design load. The quantity of piles, plan dimension and the embedment depth into the support soil are parameters that Structural Engineers can modify in order to ...

photovoltaic systems in cold areas is influenced by the interaction of the shallower layer of soil with the atmosphere. In particular, the frost heaving induced by freezing of the ground can ...

This paper addresses geotechnical and structural aspects of pile design for solar farm foundations. The work incorporates aspects of numerical modelling, unsaturated soil ...

Pile cutting refers to the process of trimming or leveling the upper part of foundation piles, either to a predetermined elevation or to remove damaged portions. This procedure is crucial in ensuring that the pile head is ...

Based on engineering practices of four typical traffic immersed tunnels built in China, this paper details the features of the four dominant foundation treatment methods for immersed tunnel construction: pile foundation, sand flow ...

Collapse of the thin shell of the piles; Overweight due to earthfill. Remedies to prevent failure of pile foundation: Early repair such as encasement or ...

In order to deal with the collapse of soil in pile bore holes due to construction wastes, this essay discusses four possible solutions. By comparing the advantages and disadvantages of these solutions, the method of Manual ...

Bored piles involve making pile holes in the site needing pile by mechanical drilling methods and other

methods, then placing the pile made of reinforcing cage and pouring concrete inside the holes.

Keywords: photovoltaic plant, load test, foundation, metallic pile, traction, compression, lateral load, pull out test, jacking. Summary: Foundations projected for photovoltaic plants resist loads that we could describe as light. These loads are usually transmitted to the ground by driving short metal piles. In order to determine

The pivotal aspect of pile foundation design encompasses the assessment of its horizontal load-bearing capacity, which is of paramount importance. If ignoring this point, it can affect the ...

A Pile Foundation problem: Collapse of soil in pile bore holes. In Applied Mechanics and Materials ; Trans Tech Publications Ltd.: Uetikon-Zuerich, Switzerland, 2015; Volume 744, pp. 413-416.

This document provides a method statement for pile head treatment from D.P. Jayasinghe Piling Co. It outlines that the scope is hacking and treating pile heads up to the required cut-off level. Materials used include fresh water, rebar, steel ...

use in Taiwan to expand base. Test pile for the bridge pile foundation found that two broken pile quality problems. The construction unit took timely measures to deal with, and achieved satisfactory results. (1) No. 11 Pier 1 piles, pile diameter 1.8m, pile length 20.2m, pile foundation detection found that

Pile foundation is widely used deep foundation for complex geologic conditions with kinds of load conditions, especially for soft soil foundation. Pile foundation has large bearing capacity, well stability and small differential settlement ...

1.2 Collapse of Pile Sides If casing is not provided, pile sides would collapse in soft and loose soil. This problem can be observed and solved by supervisor. The solution is to install casing. ... There are several issues that may be encountered during pile foundation construction. These problems will cause deficiency in the capacity of the pile ...

This study demonstrates that it is possible to minimize the collapse potential C_p to an acceptable level after chemical treatment with salts (ammonium sulfates $(NH_4)_2SO_4$ and potassium chlorides ...

The bored pile is a commonly used method for foundation treatment. During the construction process, there is a possibility of residual soil and other impurities in the pile holes. The presence of these substances can have negative impacts on the quality and performance of the pile foundation. ... The pile foundations in the Wanqingsha depot of ...

The use of bentonite and polymer as a support fluid in the boring of the bored pile has different effects on the pile bearing capacity. As well as they have a different impact on the environment ...

Photovoltaic board pile foundation collapse treatment

The calculation process can be based on the relevant formula in the " specification " [29]: (1) $m = (v y H)^{5/3} b^{0.5} Y^{0.5} 3 (E I)^{2/3}$ (2) $\alpha = (m b^0 E I)^{1/5}$ In the formula, where m is the proportional coefficient of the horizontal resistance coefficient of the foundation soil, measured in kN/m^4 ; α is the horizontal deformation coefficient of the test pile, measured in m^{-1} ; $v y$ is the ...

Combined with practical engineering,the author analyzes the causes of quality problems in bored cast-in-situ pile construction as water oozing from pile casting,collapse of hole wall,deflection of drilling,excess detritus quantities at pile toe and long borer auger,proposes preventive measures,and illustrates the causes and preventive measures of construction quality problems ...

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