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NATIONAL STANDARD OF
THE PEOPLE'S REPUBLIC OF CHINA

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Code for investigation
of geotechnical engineering

岩土工程勘察规范

GB 50021—2001

Issue date: Oct 01, 2002

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GB 50021—2001

Chief Editorial Department:	The Ministry of Construction, P.R.C
Approved Department:	The Ministry of Construction, P.R.C
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NOTE

This book is the English translation of Code for investigation of geotechnical engineering GB 50021—2001. In the event of any inconsistency between the Chinese-language text of the Code and the present English-language text of the Code, the Chinese-language text shall be taken as ruling.

Document of the Ministry of Construction, P.R.C

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Notice concerning Promulgating of the national standard of “Code for investigation of geotechnical engineering ”

In accordance with the requirements of “Notice on establishment and revision of national standard for engineering construction 1998”(No. JB (1998) 244), the “Code for investigation of geotechnical engineering” edited mainly by Ministry of construction of P.R.C and other ministries and has been examined and approved as a standard with code Building GB50021—2001, and it is put into effect from Mar.1 2002. In this code, the clauses 1.0.3, 4.1.11, 4.1.17, 4.1.18, 4.1.20, 4.8.5, 4.9.1, 5.1.1, 5.2.1, 5.3.1, 5.4.1, 5.7.2, 5.7.8, 5.7.10, 7.2.2 and 14.3.3 are compulsive clauses and must be carried out strictly. The former “Code for investigation of geotechnical engineering” GB50021—94 is abolished from Dec31, 2002.

The Ministry of Construction, P. R. C shall be responsible for the explanation and interpretation of the compulsive clauses in the code, China Academy of Building Research is in charge of the detailed technical content. This Research Institute for Standards and Norms shall organize its publication.

The Ministry of Construction, P.R.C

Oct 01, 2002

Foreword

This code is the revision of “Code for investigation of geotechnical engineering” issued in 1994 in according to the demand of NO.JB (1998) 244. In the course of revision, China Academy of Building Research and other investigation, design, scientific research and teaching units has made a wide range of investigation, has made special report on the key modification parts, and harmonized with the active national standard. After lots of discussion and iterative revision, we formed “First draft”, “Taken counsel draft” and “Audit draft” and the final version has been examined and approved finally.

This code keeps the scope of application, general frame and main content of “Code for investigation of geotechnical engineering” issued in 1994. It includes 14 chapters. The first one is General, the second one is Terms and symbol, the third one is Grade of investigation and classification of rock and soil, the fourth one is basic requirement of the investigation for engineering, the fifth one is adverse geologic actions and geological disaster, the sixth one is special rock and soil, the seventh one is underground water, the eighth one is engineering geological mapping and probe, the ninth one is exploration and sampling, the tenth one is in-situ tests, the eleventh one is indoor tests, the twelfth one is corrosivity appraisal of water and soil, the thirteenth one is in-situ inspection and monitoring and the fourteenth one is geotechnical appraisal and production report.

The main emendatory contents are as follows: 1.the scope of application adds the investigation of nuclear power plant; 2.the chapter “terms and symbols” is added to the code; 3.classification of hardness, integrity and basic quality of rock is added; 4.the investigation demand of “house construction and structure” and “pile foundation” are modified; 5.the investigation specification of “underground cavity”, “bank side engineering”, “foundation pit engineering”, “foundation treatment” are modified; 6. The section “tailings fill dam and ash storing dam” is modified to the investigation of “reject disposal engineering”; 7.the chapter “field stability” is modified to “adverse geologic actions and geological disaster”; 8. “Field and foundation of meizosismal area” and “earthquake liquefaction” is assembled to “earthquake effect of field and foundation”; 9. “Collapsibility soil” and “red clay” of special soil is modified; 10.the investigation demand of “underground water” is strengthened; 11. “Deep lift load test” and “flat shovel side swell test” is added. In order to provide the criteria of executing the law for the examination of engineering quality, the length of code is compressed and the technical rules of investigation are emphasized.

The code may be modified partially and the modified content and clauses will be published on “engineering construction standardization”.

The clauses marked by bold-face are compulsive clauses and must be carried out strictly.

In order to enhance the quality of the code, all units should generalize experience and accumulate information during the course of implement and send your ideas to China Academy of Building Research (inside street NO177, Dongzhi Door Beijing, post code: 100007).

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1 General

- 1.0.1 This code is made to carry out the technical and economic policy about the geotechnical investigation and to assure the advantage of technology, the rationality on economic and the engineering quality and to enhance the investment efficiency.
- 1.0.2 This code can be applied in the geotechnical investigation except the hydraulic engineering, railway, road and tunnel engineering construction.
- 1.0.3 **The geotechnical investigation must be carried out according to the basic construction process before the design of engineering construction. The geotechnical investigation should accord with the demand of engineering construction to show geologic condition correctly. We must find out the adverse geologic actions and geological disaster and provide the correctly evaluated report including full-scale information by investigating and analyzing the condition carefully.**
- 1.0.4 Besides the code, the geotechnical investigation should accord with the active regulation in our country.

2 Terms and symbols

2.1 Terms

- 2.1.1 **Geotechnical investigation**
The investigation document should be compiled according to the engineering construction demand by finding, analyzing and evaluating the geological, environmental distinction and the geotechnical condition of the construction field.
- 2.1.2 **Engineering geological mapping**
We must find out the engineering geology feature and map out the engineering geology drawings by collecting data, survey and visitation, geologic survey and remote sensing interpretation.
- 2.1.3 **Geotechnical exploration**
The measure of Geotechnical exploration includes drilling, costean, trenching, exploring mining, cavity exploring, geophysical prospecting and penetration sounding.
- 2.1.4 **In-situ tests**
When we make this test, we should keep the preliminary structure, humidity and stress condition of the rock and soil.
- 2.1.5 **Geotechnical investigation report**
On the basis of basic data, by collating, statistics, generalization, analysis and evaluation, the investigation document for the engineering will be formed systematically.
- 2.1.6 **In-situ inspection**
We should examine the effect of construction measure and the investigation result in situ.
- 2.1.7 **In-situ monitoring**
We should monitor the character of rock and soil, the change of underground water, and the stress and displacement of structure in situ.
- 2.1.8 **Rock quality designation**
We drill the rock with diamond bit which diameter is 75mm and double core barrel. For the



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