

**MARITIME WORKS RECOMMENDATIONS**

**TRANSLATED VERSION  
OF THE ORIGINAL SPANISH TEXT**



# **ROM 0.5-94**

**GEOTECHNICAL RECOMMENDATIONS  
FOR THE DESIGN OF MARITIME  
AND HARBOUR WORKS**



**Puertos del Estado**



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**OBRAS  
MARITIMAS**  
*TECNOLOGIA*



**Puertos del Estado**



**1995**

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AND HARBOUR WORKS**

## GENERAL INDEX

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## INTRODUCTION

These *Geotechnical Recommendations for the Design of Maritime and Harbour Works* (Recommendations 0.5) form part of the *Programme of Recommendations for Maritime Works* («ROM Programme») undertaken by the Spanish National Port Authorities. The aim of this Programme is to form the basis for future Spanish Standards in this field of engineering and began in 1987 with the creation of the first Technical Committee. The Committee was commissioned to draw up a series of recommendations gathering together the most advanced technology in the field of maritime and harbour engineering to form a technical tool for the engineers involved in design, supervision and construction work and providing different State bodies and private companies with functions or interests in maritime engineering with ready access to the specialized information required to carry out their work.

The ultimate aim of the Programme is to create methodological guidelines for procedures to be used in each of the fields of maritime engineering, laying down minimum conditions and developing the application of current European standards to maritime and harbour engineering.

The first set of Recommendations under the ROM Programme, Recommendations 0.2-90, was published in 1990 and entitled *Actions in the Design of Maritime and Harbour Works*, and since that time the following have been published:

- Recommendations 0.2-90    *Actions in the Design of Maritime and Harbour Works\**.
- Recommendations 0.3-91    *Environmental Actions I: Waves, Annexe 1: Wave Climate on the Spanish Coast\**.
- Recommendations 0.5-94    *Geotechnical Recommendations for the Design of Maritime and Harbour Works\**.
- Recommendations 0.4-95    *Environmental Actions II: Wind.*
- Recommendations 4.1-94    *Guidelines for the Design and Construction of Port Pavements\**.

RECOMMENDATIONS 0.5-94, *GEOTECHNICAL RECOMMENDATIONS FOR THE DESIGN OF MARITIME AND HARBOUR WORKS*, has been prepared by the Technical Committee appointed for the purpose by the Chairman of the Spanish National Port Authorities, through its Technical Directorate.

The Committee members and the bodies they represent are as follows:

- |                       |                             |                                   |
|-----------------------|-----------------------------|-----------------------------------|
| — Chairman:           | Juan Muñoz Mitchell         | Spanish National Port Authorities |
| — Programme Director: | Francisco Esteban Rodríguez | Spanish National Port Authorities |
| — Secretariat:        | José Llorca                 | Spanish National Port Authorities |
|                       | Itziar Rodríguez Aguirre    | Spanish National Port Authorities |
| — Members:            | Luis Casero                 | INTECSA                           |
|                       | Braulio González-Madrigal   | CEPYC-CEDEX                       |
|                       | Juan Ignacio Grau           | IBERINSA                          |
|                       | Claudio Olalla              | Geotechnical Laboratory-CEDEX     |
|                       | Eloy Pita                   | Spanish National Port Authorities |
|                       | Javier Rodríguez-Besné      | Spanish National Port Authorities |
|                       | Carlos Sanchidrián          | ALATEC                            |
| — Paper contribution: | Antonio Soriano             | Ingeniería del Suelo, S.A.        |

This set of Recommendations 0.5-94 forms part of the series of general recommendations (designated by the initial 0) and therefore applies to any type of maritime works.

\* English translation available.



Preparation of these Recommendations has not only been based on a comparative methodological analysis of existing bibliography throughout the world on the subject but has also taken into consideration the experience of the different members of the Committee and the Spanish harbour system.

The aim of this publication has been to achieve a certain standardization in the geotechnics applied to maritime and harbour works despite the fact that this is a difficult field to standardize. The concept of standardization in geotechnics in this context means providing the geotechnical criteria needed to carry out maritime and harbour works designs which are compatible with each other and with other design criteria. In other words, the aim has been to define certain procedures which, if applied to different designs, will lead to a certain uniformity of approach.

The intention of the geotechnical recommendations included in this publication is to guide the designer by a series of methods and procedures which the Committee believe are the most appropriate from amongst the alternatives currently available in geotechnical practice and aimed at reflecting good practice accumulated from past experience. An attempt has been made to steer clear of overly innovative criteria which may not be advocated in the future even though the aim here has been to deal with analysis methods and approaches which are sufficiently up-to-date.

In summary, the set of recommendations included is aimed at providing a uniform reference framework for the geotechnical study of the different and varied types of maritime and harbour works possible and should therefore be seen as a «Guide to Good Practice», without prejudicing the need to comply with the official standards and codes which apply.

One important aspect of these Recommendations is the way in which safety is taken into account in geotechnical design work. The most traditional geotechnical methodology has been adopted even though the publication also takes into account the methods based on partial safety factors introduced by the Eurocode for geotechnics, along with various recommendations to assist the designer deciding to use these. For the time being and whilst the appropriate experience is being acquired, it is felt that it would be prudent not to exclude other more traditional analysis procedures. The use of partial safety factor methods would in any event constitute a worthwhile additional task.

As with other parts of this ROM Programme, this set of Recommendations will be revised in the future after designers have acquired a certain experience of using them. Any suggestions or comments made will be taken into consideration by the Committee in the next revision. They should be forwarded to:

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OCTOBER, 1995

# **OBRAS MARITIMAS**

*TECNOLOGIA*



**Puertos del Estado**



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## **ROM 0.5-94**

### ***Part 1.-***

#### **General**

See updated text in the current revised version of the latest **ROM 0.5-05**

## **ROM 0.5-94**

### ***Part 2.-***

### **Geotechnical Investigation**

See updated text in the current revised version of the latest **ROM 0.5-05**

## **ROM 0.5-94**

### ***Part 3.-***

#### **Geotechnical Criteria**

See updated text in the current revised version of the latest **ROM 0.5-05**

## **ROM 0.5-94**

### ***Part 4.-***

### **Particular Geotechnical Aspects of different types of Maritime and Harbour Works**

See updated text in the current revised version of the latest **ROM 0.5-05**