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BASIC REQUIREMENTS FOR MANUSCRIPTS

Original papers and discussions of current papers should be submitted to the Manager of Technical Publications, ASCE. Authors should indicate the technical division to which the paper is referred. The final date on which a discussion should reach the Society is given as a footnote with each paper. Those who are planning to submit material will expedite the review and publication procedures by complying with the following basic requirements:

1. Titles must have a length not exceeding 50 characters and spaces.

2. A summary of approximately 50 words must accompany the paper, a 300-word synopsis must precede it, and a set of conclusions must end it.

3. The manuscript (an original ribbon copy and two duplicate copies) should be double-spaced on one side of 8½-inch by 11-inch paper. Three copies of all illustrations, tables, etc., must be included.

4. The author's full name, Society membership grade, and footnote reference stating present employment must appear on the first page of the paper.

5. Mathematics are recomposed from the copy that is submitted. Because of this, it is necessary that letters be drawn carefully, and that special symbols be properly identified. The letter symbols used should be defined where they first appear, in the illustrations or in the text, and arranged alphabetically in an Appendix.

6. Tables should be typed (an original ribbon copy and two duplicate copies) on one side of 8½-inch by 11-inch paper. Specific illustrations and explanation must be made in the text for each table.

7. Illustrations must be drawn in black ink on one side of 8½-inch by 11-inch paper. Because illustrations will be reproduced with a width of between 3-inches and 4½-inches, the lettering must be large enough to be legible at this width. Photographs should be submitted as glossy prints. Explanations and descriptions must be made within the text for each illustration.

8. The desirable average length of a paper is about 12,000 words and the absolute maximum is 18,000 words. As an approximation, each full page of typed text, table, or illustration is the equivalent of 300 words.

9. Technical papers intended for publication must be written in the third person.

10. The author should distinguish between a list of "Reading References" and a "Bibliography," which would encompass the subject of his paper.

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Piero Sembenelli

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CONTENTS

March, 1963

Papers

(over)

Note.—Part 2 of this Journal is the 1963-14 Newsletter of the Soil Mechanics Division.

The three preceding issues of this Journal are dated October 1962, December 1962, and February 1963.

DISCUSSION

KEY WORDS: piles; load; bearing capacity; testing; steel; soil mechanics; foundations

ABSTRACT: Pile load tests on instrumented piles reveal that load transfer to surrounding soil is a significant factor in the capacity of point bearing piles. The piles tested were 14BP89 and 14BP117 steel H-piles driven approximately 40 ft through sand and gravel. The piles were point bearing in shale. Such piles are relatively short and stiff, but the tests revealed that they were of sufficient flexibility to transfer approximately one-third of the applied load to the surrounding soil. A theoretical calculation of load transfer is presented and is in good agreement with the observed results. The mechanism of pile failure, and significance of load transfer in the failure mechanism, is described and examined in terms of significance in design.

REFERENCE: "Load Transfer in End-Bearing Steel H-Piles," by E. D'Appolonia and J. P. Romualdi, Journal of the Soil Mechanics and Foundations Division, ASCE, Vol. 89, No. SM2, Proc. Paper 3450, March, 1963, pp. 1-25.

KEY WORDS: compaction; soil; shear; effective stress; density; water

ABSTRACT: The application of a compaction pressure to an unsaturated soil results in the development of shearing stresses at the points of contact between soil particles until the contacts fail. The particles then slide over one another with an increase in density. The compaction characteristics of soil are thus controlled by the shearing resistance of these contacts. The shearing strength is a function of the effective normal stress. When the compaction pressure is applied to a dry soil, the effective stress is approximately equal to the total stress, because the χ-coefficient is small. The addition of water increases the degree of saturation and increases the pore pressures, thus weakening the soil. Hence, the soil deforms more under stress, and higher densities result. The density must increase during compaction until the total stress, the pore-air pressure, and the pore-water pressure combine to give the required effective stresses. The theory is qualitative because little is known of the dynamic stress-strain properties of unsaturated soils.

REFERENCE: "Effective Stress Theory of Soil Compaction," by Roy E. Olson, Journal of the Soil Mechanics and Foundations Division, ASCE, Vol. 89, No. SM2, Proc. Paper 3457, March, 1963, pp. 27-45.

KEY WORDS: dams; earthfill; clay; compaction; settlement; plasticity; strains; testing

ABSTRACT: An approximate theory is formulated to calculate the critical tensile strains in an earth dam that result from differential settlements along the axis of the dam. Laboratory apparatus and procedures are developed to estimate the limiting tensile strain at which compacted clay will crack. Comparisons between predicted and observed behavior of five dams indicate that the theory and laboratory tests can be used to predict cracking potential with an accuracy that is satisfactory for practical purposes. The ratio of tensile strain at cracking to compressive strain at failure is a small fraction (approximately 0.01 to 0.1) that shows no evidence of any consistent pattern. Accordingly, it is hazardous to assess the flexibility of compacted earth dams on the basis of stress-strain relations obtained from compression tests. The effects of molding water content and compactive effort on the flexibility of clay was investigated. No consistent relationship between flexibility and plasticity characteristics of the clay was found.

REFERENCE: "Flexibility of Clay and Cracking of Earth Dams," by G. A. Leonards and J. Narain, Journal of the Soil Mechanics and Foundations Division, ASCE, Vol. 89, No. SM2, Proc. Paper 3460, March, 1963, pp. 47-98.