HIGHER TECHNICAL INSTITUTE CIVIL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

CORRELATION OF THE CASSAGRANDF AND CONE PENETROMETER TESTS FOR THE DETERMINATION OF THE LIQUID (IMIT OF SOILS

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Project Report

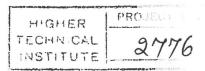
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This study is dedicated to our Families

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SUMMARY

The main purpose of the project was to correlate experimentally the cassagrande and the cone penetrometer tests. To fulfil this purpose, different type of clay samples were tested using the before said tests and liquid limit values were found. The approach followed was based on ten elements:

Chapter 1, which constitutes the first element, was entirely devoted on giving information about clays such as engineering properties and to give a brief reference of the Cyprus clays and its division.

Chapter 2, which is the second element is a general report about soils classification.

Chapter 3, the third element, is based on the engineering meaning of liquid limit.

Chapters 4 and 5, briefly describe the two methods used for the determination of liquid limit; cassagrnade and cone tests.

The sixth chapter, state the preliminaries for the project.

Chapters 7, 8, 9 are composed of the discussion of experimental findings, the correlation of two test and lastly general conclusions on the project.

Finally, the references which form the final element state the different hints which helped for the completion of this project.

1. INTRODUCTION

This report, occupies with the engineering importance of the liquid limit in civil engineering projects. In fact this is studied indirect as the main aim centralises on the Cassagrande and Cone Penetrometer test and the question: "Which is the most reliable and accurate test for the determination of liquid limit".

Since the central objects were the experiments, hence a laboratory work was "imposed". The laboratory work was carried out in the Higher Technical Institute Soil's laboratory from a variety of samples taken from different areas of Cyprus, during the academic year 1996-1997.

The samples taken, consisted of clays of the variable groups of Cyprus clays.

After the tests have been conducted, a desk study followed for working out the results.

This study born the relationship between Cassagrande and Cone Penetrometer tests together with the answer of the question made on the beginning of the introduction.

2. <u>OBJECTIVES</u>

The main objectives of the present study were:

- (a) To correlate experimentally the Cassagrande and Cone Penetrometer tests.
- (b) To explain in depth the results of the experimental findings.
- (c) To give a brief account of the usefulness of the Liquid Limits in soils with special emphasis to the Cyprus practices.

It was intended to perform the two tests on as many samples of fine-grained soils as possible. The samples were taken from different areas of Cyprus so as to include low, intermediate and high compressibility soils. It was also intended to cover as much as possible of the large variety of Cyprus clays so as to establish a relationship of between the two experiments. and to reveal the most suitable and reliable test for the determination of L.L. Emphasis was also given to the usefulness of the L.L of soils for the different engineering projects.

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