H.T.I.

CIVIL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

PRODUCTION OF DRAWINGS WITH

THE AID OF A CAD PACKAGE

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GEORGIA ELEFTHERIOU

JUNE 2000

PRODUCTION OF DRAWINGS WITH THE
AID OF A CAD PACKAGE

by

GEORGIA ELEFTHERIOU

Project Report Submitted to

The Department of Civil Engineering of the

Higher Technical Institute

Nicosia, Cyprus

In partial fulfillment of the requirements

for the award of diploma of

TECHNICIAN ENGINEER

in

CIVIL ENGINEERING

JUNE 2000

HIGHER TECHNICAL INSTITUTE
NICOSIA, CYPRUS
CIVIL ENGINEERING DERARTMENT

Academic Year: 1999/2000

Title: production of drawings with the aid of a CAD package

Objectives:

-to master the basic functions of the CAD package used

-to produce a set of drawings (civil and architectural) with the aid of a CAD package.
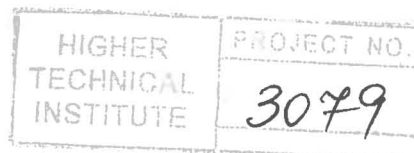
Terms and Conditions:

CAD package: Microstation 95

The supervisor will give set of drawings.

Student: GEORGIA ELEFTHERIOU

Supervisor: Mr. M. POULAIDES

External Assessor: Mr.G.ANTONIOU.

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AKNOWLEDGEMENTS

I would like to express my sincere appreciation and thanks to my supervisor Mr.M.Poullaides for his priceless help and guidance during the preparation of this project.

Further more I would like to thank Mr. George Antoniou and Miss Avgi Panayi for assisting me in learning the use of Microstasion and for providing me with all the necessary facilities for the completion of this project.

Finally many thanks are due to my parents, sisters, my cousin and my fiancé for their help, understanding and financial support, during the whole period of working on the project.

SUMMARY

Preparation of drawings with the aid of a CAD package
By Georgia Eleftheriou 3C2
June 2000

This project was prepared in order to fulfill the requirements for the award of diploma of technical engineering in Civil Engineering and its objectives which are the mastering of a CAD package and the preparation of a set of drawings both civil and architectural.

The CAD package that was used in Microstation 95 and was determined by the supervisor of the project Microstation 95 software and by the great help, which obtained from Intelligraph Consultants Limited that is a branch of Bentley System incorporated. Then the corresponding set of drawings that were agreed from the project supervisor was prepared on Microstation 95.

INTRODUCTION

As computers increasingly became part of our everyday lives, whether used for business or pleasure, it was inevitable that drafting i.e. the preparation of drawings would eventually be affected. Thus Computer Aided Drafting (CAD) packages were developed.

The aim of this project was to master the use of CAD package MICROSTATION 95 and to implement its use to produce a set of drawings both civil and architectural.

CAD packages replace the traditional Herndon drafting procedures. All the basic features of drafting are still present although the uses of these packages allow for greater accuracy. The implementations of these packages also create a lot of new features such as copying, scaling, and rotating. These features save time by enabling the user to use an existing part of the drawing to create an additional one making the whole concept more reliable, accurate and above all time saving.

Before the actual placement of elements in the drawings of each design File some preparations had to be made in order to facilitate more versatile and consistent drafting. First of all, the line types to e used were determined with every type indicating a different condition of the drafted element such the solid lines indicating elements which were to be in the front, broken lines for elements hidden behind existing ones and dotted lines for the axis of the drawings.

The line weights were also determined with thicker lines to indicate primal elements and thinner ones for elements showing in the back of the drawing.

The working units of the designing file were set to be meters and centimeters with an accuracy of one thousandth of a meter in order to facilitate an accurate drawing which was prepared on a one to one scale for easier and faster drafting.

A certain color and level was assigned to each group of similar elements such as axis, walls, columns dimensions, etc. for easier identification and modification of each element and also in order to facilitate easier viewing by turning on and off levels containing elements such as dimensions texts and hatching.

The multi-lines which were to be used for the construction of composite elements such as cavity walls were prepared and stored with their attributed concerning their color, level, weight and style set to match those defined in the design file.

A complex element that where to be used more than once such as doors windows and fences where created and then where defined as cells. These cells where stored in a cell library so that they could be accessed and placed easily, thus achieving fast and consistent drafting.

These features and many more as well as the tools of Microstation used for the preparation of this project, described in the following pages are the backbone of the whole Microstation 95 CAD package.