

HIGHER TECHNICAL INSTITUTE

CIVIL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

PRODUCTION OF A TOPOGRAPHICAL MAP

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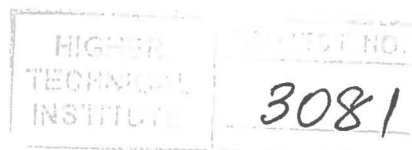
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**Project report submitted to
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SUMMARY

The object of this project is to produce a topographical map of an area chosen in Aglandjia.

A reconnaissance survey was made to choose the boundaries and stations to be used. Nine stations were chosen but a tenth was added to help in sighting "difficult" points.

The area was detailed using the method of tacheometry. The leveling was done with the help of a grid.

The instruments that were used during the whole traversing and contouring process were: a theodolite, an EDM with a prism and an automatic level with its stadia. The leveling was done from four independent stations that covered the whole area.

Finally, four maps were produced. A traverse map, where there's nothing but the stations chosen. A detailed map, where there's the detail of the area. A contour map, where the grid and contour lines are clearly shown. The final map, which is a complete map of the area with the loop, the detail, the grid and the contour lines.

INTRODUCTION

SURVEYING

Surveying has to do with the determination of the relative spatial location of points on or near the surface of the earth. It is the art of measuring slope and horizontal and vertical distances between objects, of measuring angles between lines, of determining the directions of lines, and of establishing point locations by predetermined angular and linear measurements.

Accompanying the actual measurements of surveying are the mathematical calculations. Distances, angles, directions, locations, elevations, areas, and volumes are thus determined from the data of the survey. Also much of the information of the survey is portrayed graphically, either by the construction of maps, profiles, cross sections, and diagrams on map sheets or by viewing a video screen using digitized data stored in an electronic computer.

The equipment available and the methods applicable for measurement, storage, calculation, and compilation of the data have changed tremendously in the past decade, mainly due to the growth of the electronics industry and development of the microprocessor. The Global Positioning System (GPS, a positioning method based on measurements to orbiting satellites), total station systems in which the distance and direction can be observed with one compact instrument, Geographic and Land Information Systems (GIS and LIS), digital photogrammetry, and inertial surveying are examples of current systems to measure, collect, and display information usable in the surveying procedure. The relatively easy access to electronic computers of all sizes and capabilities facilitates the rigorous processing and storage of large volumes of data in the field and in the office.