FINAL YEAR PROJECT REPORT

ADVANCED DIPLOMA IN CIVIL ENGINEERING

SCHOOL OF ENGINEERING

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM

EFFECT OF SURCHARGE PRESSURES AND MOISTURE CONTENTS ON THE PIPE JACKING FORCE

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SYPNOSIS

Trenchless pipe laying or pipe jacking is a new technique of pipe laying being carried out in Malaysia. Its many advantages may override its disadvantages in many casses. However very little study have been carried to gather information regarding the technique. This small study will provide a basis of understanding of the pipe jacking process.However the study is limited to some soil parameters only.

The soil used in this testing was of the laterite type. The pipe used was of a 150 mm diameter asbestos concrete pipe . As moisture contents and surcharge(depth of soil) have an effect on the jacking force, the relationship between the jacking force and the distance travelled with moisture content and surcharge are presented in this report. The variation of the jacking force and the distance travelled with four different surcharges and same moisture content is highlighted. Test were also conducted for five different moisture contents at same surcharge
is also provided. A total of 20 tests were carried out.

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CHAPTER ONE

GENERAL INTRODUCTION AND SCOPE OF STUDY

1.1 INTRODUCTION

Malaysia as a fast developing nation, is vigorously pushing forward her national construction and developement plans. Under these circumstances, urban public works show an increasingly greater *dependance upon the underground construction method* because the surface space available is becoming more and more limited as urban developement proceed. Malaysia now seems to be following the same path of development as that which Japan has gone through.

Pipe jacking is a technique developed in America in 1890's to place concrete pipes under railway track without disturbing rail traffic. Since then techniques have changed very little except that larger diameter and larger length can be jacked due to the finer tolerences and higher strengths of modern pipes coupled with requirements in jacking, handling excavation methods and line lubricants.