JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

"ECONOMICAL DESIGN OF LOFT RETAINIG WALL"

[1]Rohini B. Tembhare [2]Rajni V. Shivankar [3]Pragati V. Bhute
[4]Chittaranjan P. Kapgate [5]Chinmay L. Khapekar

B.Tech Student, Department of Civil Engineering, MPCE, Bhilewada, Bhandara.

[1]Prof:- V. R. Nandgaonkar

Assistant Professor, Department of Civil Engineering, MPCE, Bhilewada, Bhandara.

Abstract

A cantilever retaining wall is a structure commonly used in civil engineering to retain soil and other materials. Its design involves a horizontal base, called the footing, and a vertical wall extending above the ground. The wall is typically thicker at the base and tapers towards the top, providing stability against the pressure exerted by the retained material. It has been observed that use of loft considered for alleviate the magnitude of earth pressure itself at the back of retaining wall and the factor of safety against sliding as well as overturning improved. Looking towards the present scenario an attempt has been made. To examine the reduction in quantities of construction material in the retaining wall. Cantilever retaining wall with and without lofts cohesion less backfill of constant height considered for analysis. Various sections of retaining wall with and without loft has been evaluated and designed. Work has been carried out at different sections and many comparisons has been made on the construction material. This comparison clearly indicates a considerable reduction in quantities. The overall effect will result in reduction in the cost of retaining wall structure. In this case details are made to analyse and the remarks indicating reduction in quantities of these kind of materials by providing provisions of loft at back of retaining wall.

INDEX TERM:- CANTILEVER, LOFT, RETAINING WALL, OVERTURING, AGAIST SLIDING, FACTOR OF SAFETY.

1. INTRODUCTION

A retaining wall is a structure designed to hold back soil or other materials and prevent erosion or sliding. It's commonly used in landscaping, construction, and civil engineering to create level areas on sloped terrain or to prevent soil movement. Retaining walls can be made from various materials such as concrete, stone, brick, or timber, and they come in different designs and styles to suit different purposes and aesthetic preferences. Retaining walls are the structures used for supporting soil laterally so that it can be retained at different levels. To design retaining walls it is necessary to calculate active and passive earth pressure on wall.

This paper deals with two types of reinforced concrete retaining walls namely:

1) Cantilever retaining wall: A Cantilever structure is used by a cantilever retaining wall to withstand the lateral pressure of the earth behind it. Usually made of reinforced concrete, the wall is composed of three slabs : a horizontal slab , a vertical stem, and a horizontal top slab . A Heel at the bottom and a toe at the top of the wall connect the base and top slabs.