CBR TEST

The California Bearing Ratio or CBR test is performed in construction materials laboratories to evaluate the strength of soil subgrades and base course materials. Those who design and engineer highways, airport runways and taxiways, parking lots, and other pavements rely on CBR test values when selecting pavement and base thicknesses.

It is a penetration test which is used to evaluate the subgrade strength primarily of roads, pavements and foundations.

The CBR test often forms part of the overall site investigation and is useful for determining the thickness of materials needed for the proposed construction.

CBR TEST

A CBR Test works by testing the pressure required to penetrate a soil sample with a plunger of the standard area and measuring this.

This measurement is divided by the pressure needed to achieve an equal penetration on a standard, high quality crushed rock material. The harder the surface, the higher the CBR value.

The CBR test can be carried out on soils with a maximum particle size of 20mm. Tests are most usually undertaken at surface level or at depths of between 500-1000m, most commonly in 20-30mm intervals along the proposed construction centreline.

When Do you Need a CBR Test?

Pavement Design

CBR testing is undertaken for the design of highways and housing estate roads to determine the strength of the subgrade soil and enable appropriate selection of suitable pavement thickness for the anticipated traffic density together with any precautions for frost heave.

Foundation Design

The purpose of foundations is to transfer loads from a structure to competent soil/rock. They come in the form of traditional shallow spread foundations (strips, pads and rafts) or deep foundations (piles and ground improvement). The main factors influencing foundation design is the stability of the underlying ground and settlement.
Foundation depths will be influenced by the strength of the ground, seasonal moisture variations, the effects of tree roots, frost action, river erosion, groundwater elevation and buried structures / ground disturbance.

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