# Estimate of insitu CBR with a 9 kg Dynamic Cone Penetrometer

## Scope

The following describes a method of estimating the Insitu CBR of cohesive fine grained soils using a 9 kg dynamic cone penetrometer. The test method follows *AS1289.6.3.2 “Soil Strength and Consolidation Tests – Determination of the penetrometer resistance of a soil-9 kg dynamic cone penetrometer test”*.

The testing, whenever practical, shall be undertaken when the cut level is in the order of 100mm above formation level and extended to at least 100mm below the subgrade zone.

## Apparatus

As per *AS1289.6.3.2*.

## Procedure

Generally as per *AS1289.6.3.2* with the following explanations.

1. Record the cumulative penetration (mm) after every second fall of the hammer until;
2. The cone has penetrated to at least 100mm below the subgrade zone, or
3. After 20 falls of the hammer when in the event that the cone has not penetrated to 100mm below the subgrade zone.
4. Calculate the penetration (mm) per hammer fall for each of the reading sets.
5. Determine the insitu CBR for each of the reading sets using the table below and record.

#### Estimation of Insitu CBR

|  |  |
| --- | --- |
| Penetration (mm) fall | CBR |
| >90 | <2 |
| 60-90 | 2 |
| 50-59 | 3 |
| 40-49 | 4 |
| 30-39 | 5 |
| 25-29 | 7 |
| 15-24 | 10 |
| <15 | >10 |

1. Determine the lowest CBR, averaged over any 150mm depth interval, or thereabouts, within the subgrade zone (Note 1).

## Representative CBR

The Representative Insitu CBR for the subgrade zone is the lowest average CBR recorded within the particular lot, determined in accordance with Step 4 of the procedure above.

## Report

The report shall include:

* Table of the number of hammer falls, penetration (mm) and estimated CBR for each test site within the particular lot, including the chainage and offset;
* Representative Insitu CBR;
* The mean of all the test results, calculated in accordance with Step 4 of the procedure above.

*Notes:*

*The estimate should be derived from the whole number of blows to produce approximately 150mm of penetration. The depth interval may range between 100 and 200mm.*