



CLEGG IMPACT SOIL TESTER

(The Clegg Hammer)

Newsletter

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CORRELATION WITH CALIFORNIA BEARING RATIO

There has been considerable interest in correlating the Clegg Impact Value (CIV) with the California Bearing Ratio (CBR), using the 4.5 kg Clegg Impact Soil Tester from a 0.45 m drop-height with the highest value blow of four successive blows used for the CIV. The first such correlation was presented by Clegg at the Third ANZ Geomechanical Conference, Wellington, New Zealand, 1980. This correlation was based on laboratory tests in the Department of Civil Engineering at the University of Western Australia. The relationship was expressed by the equation

$$\text{CBR} = 0.07 ([\text{CIV}]^2)$$

Since that time considerable data has become available from Australian, New Zealand and United Kingdom sources. These cover a wide range of soils for both laboratory and *in situ* conditions. The results of about 200 tests are shown plotted on the attached figure. It can be seen that the previous general relationship is confirmed but with a slight correction suggested at the lower end of the scale, i.e.

$$\text{CBR} = (0.24 [\text{CIV}] + 1)^2 \quad \{r = 0.957\} \quad *$$

This revised equation appears appropriate for general use. However, since CBR is particularly subject to high variability, even within one organisation, one soil type, etc., correlations from individual sources may vary from the general equation. To avoid a change of standards it is appropriate therefore that each organisation should consider establishing its own relationship for specific materials and conditions, particularly where there is strong reliance on CBR for design purposes.

It should be noted that these data are for both samples at essentially the same density and moisture content and prepared in the same manner. Attempts have been made to correlate unsoaked CIVs with soaked CBRs but with little success. Also the question of the effect of surcharge may need to be considered.

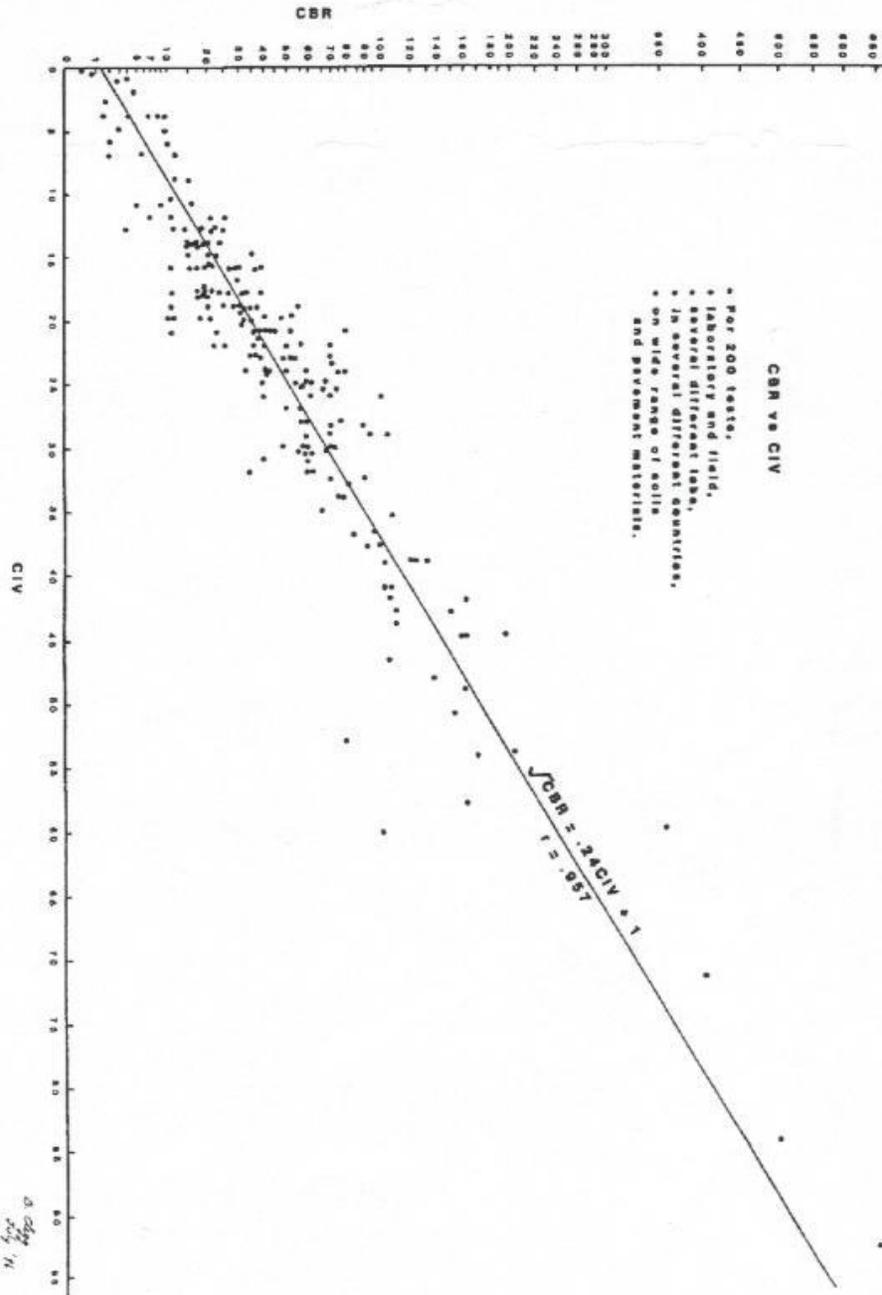
Further information as to the sources of the data is available on request.

* This equation appears on the attached figure in the form $\sqrt{\text{CBR}} = 0.24 (\text{CIV}) + 1$

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These Newsletters report on activities in the field of soil impact testing and are designed to increase awareness, awaken interest and encourage discussion. Your contributions are most welcome.

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