TRANSPORTATION GROUP NEW ZEALAND

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THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

REVIEW OF THE VIBRATORY LABORATORY COMPACTION TEST

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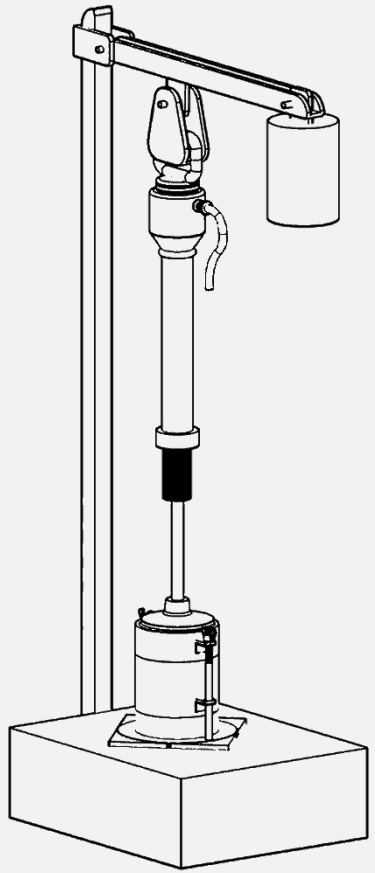
NZS Vibrating Hammer Compaction Test

Implemented Since 1950's

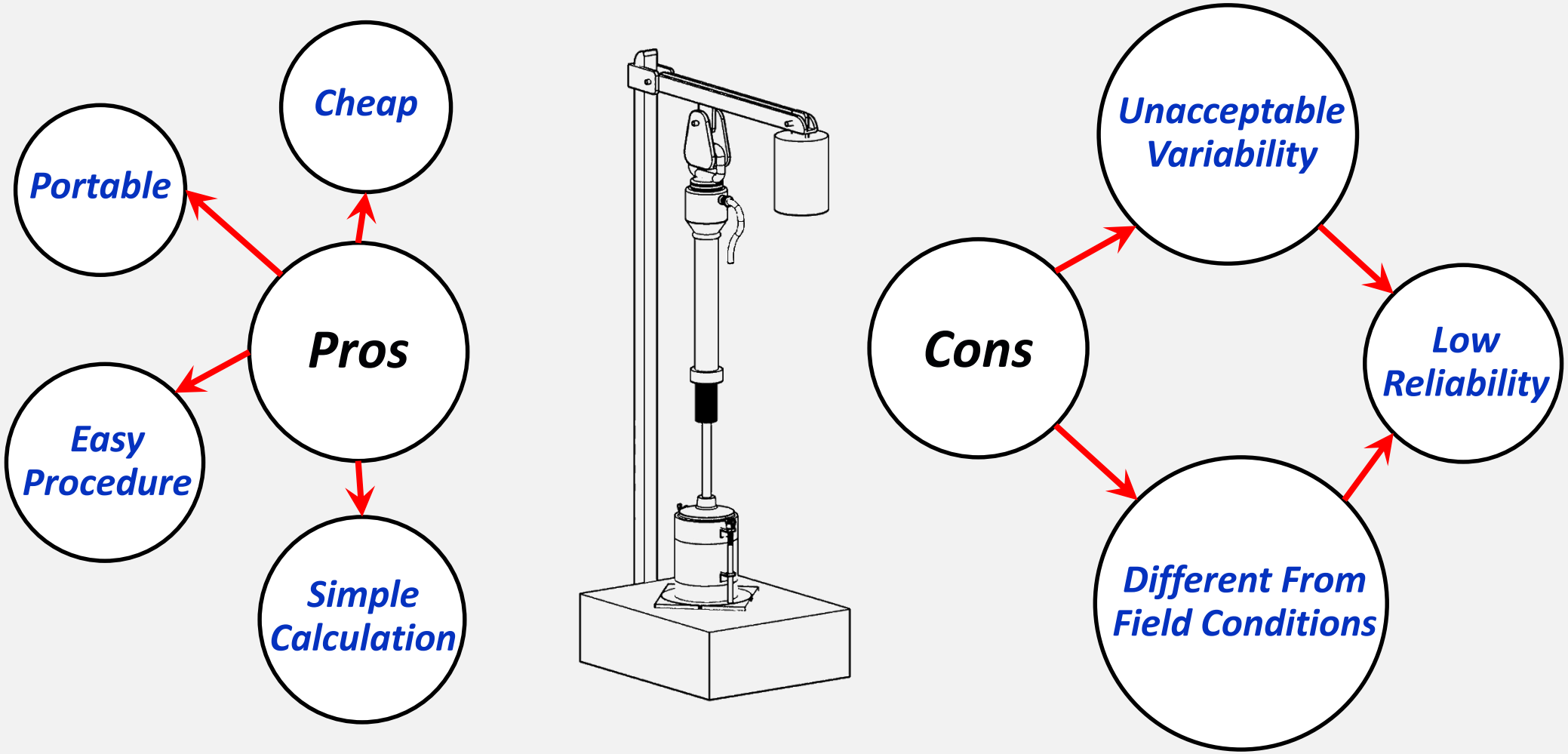
Suitable For Granular Materials



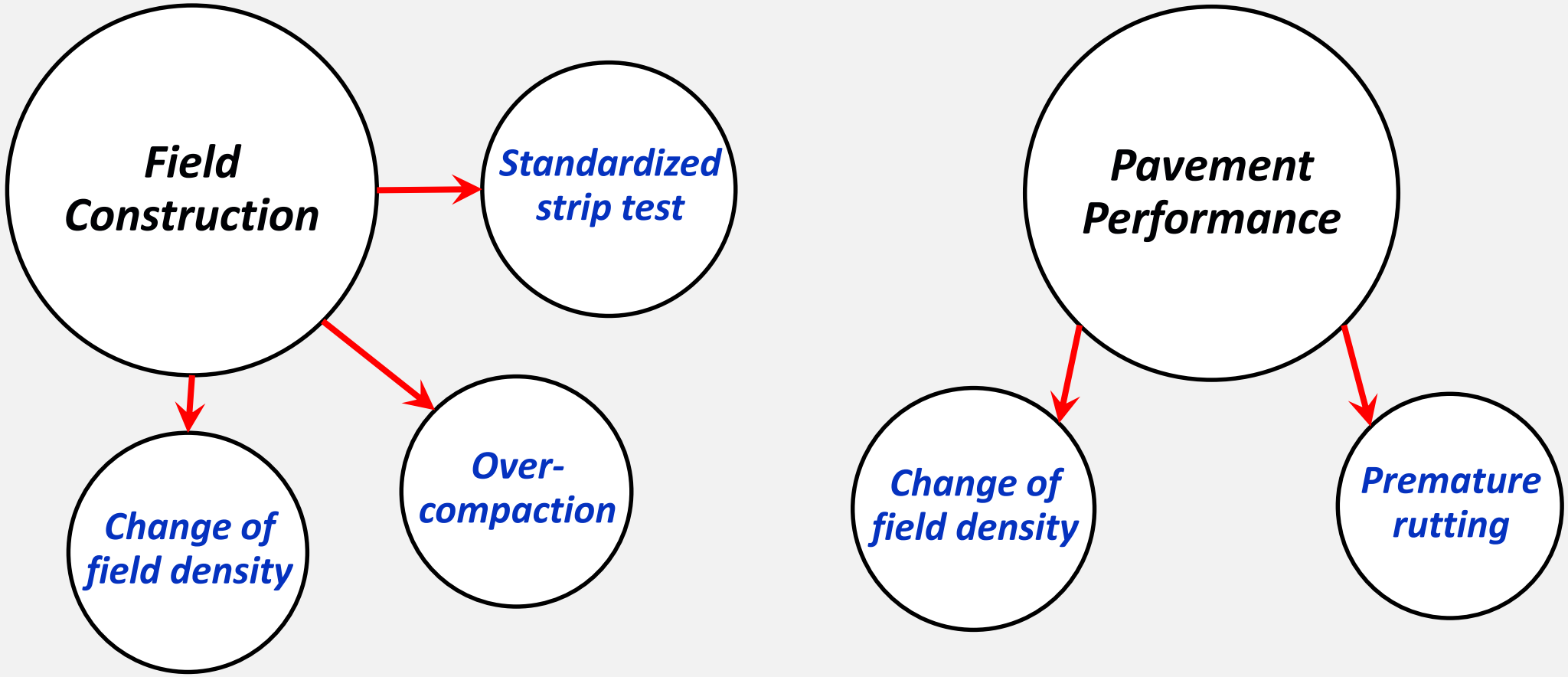
Construction Control

Preparing Other Tests Specimen

NZS Vibrating Hammer Compaction Test

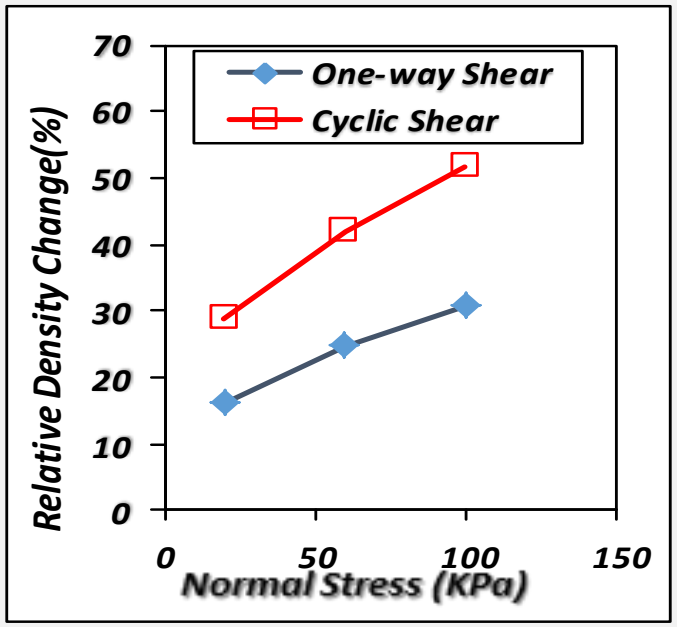


Evidence of Low Reliability of NZS Vibrating Hammer Compaction Test

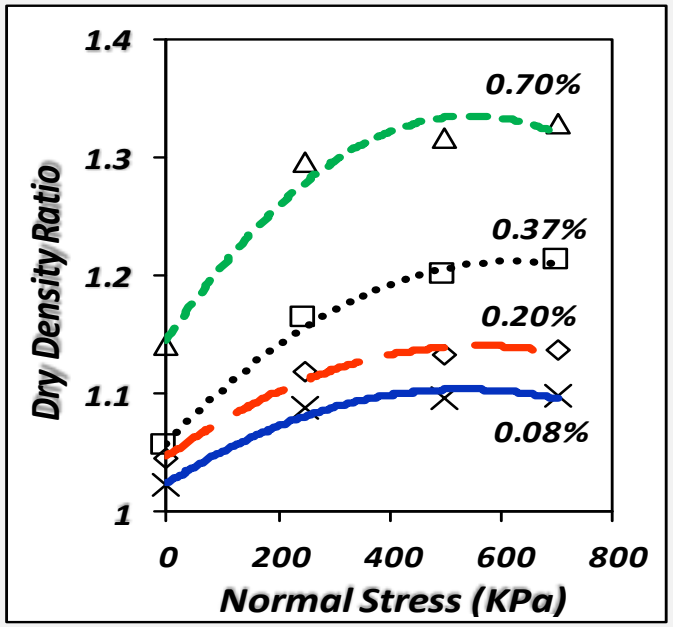


Experimental Evidence for Importance of Cyclic Shear Straining

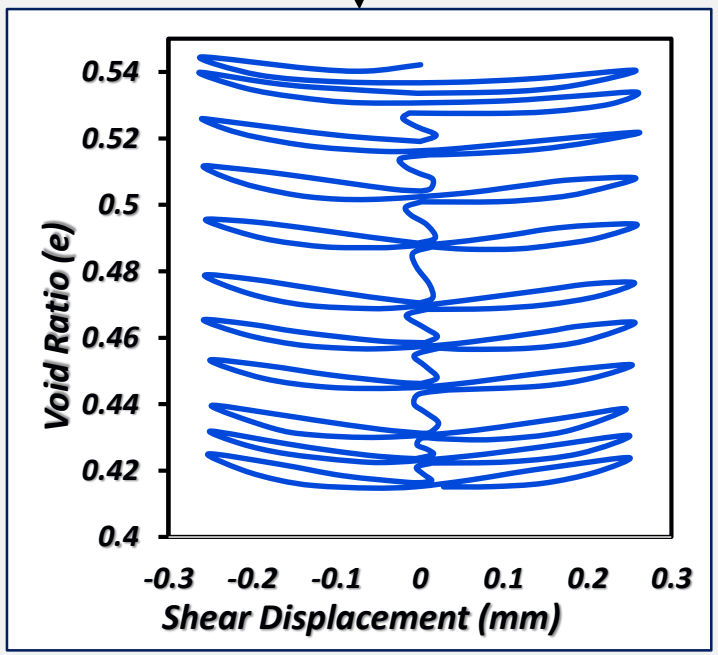
One-way VS Cyclic Shear Strain



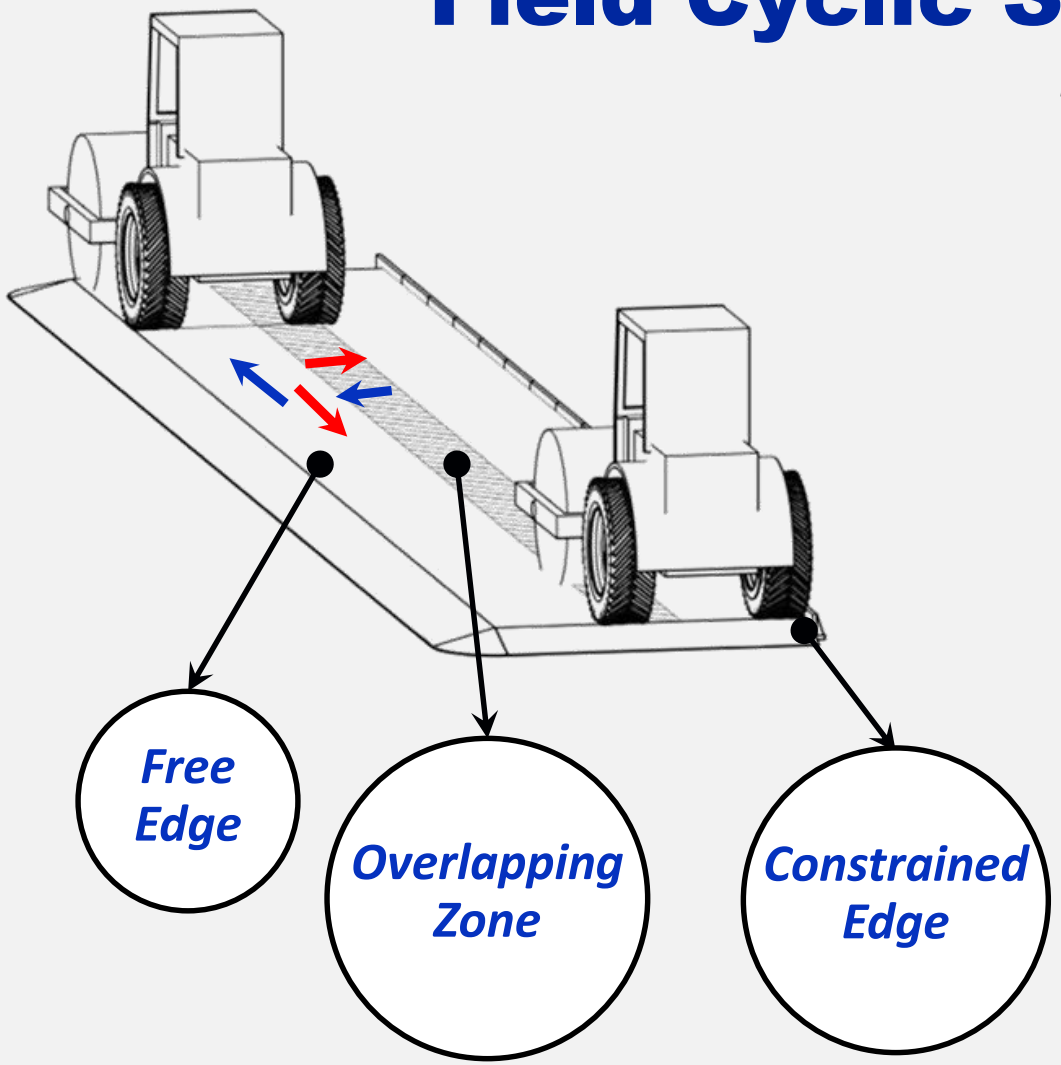
Normal Stress Increase VS Shear Strain Increase

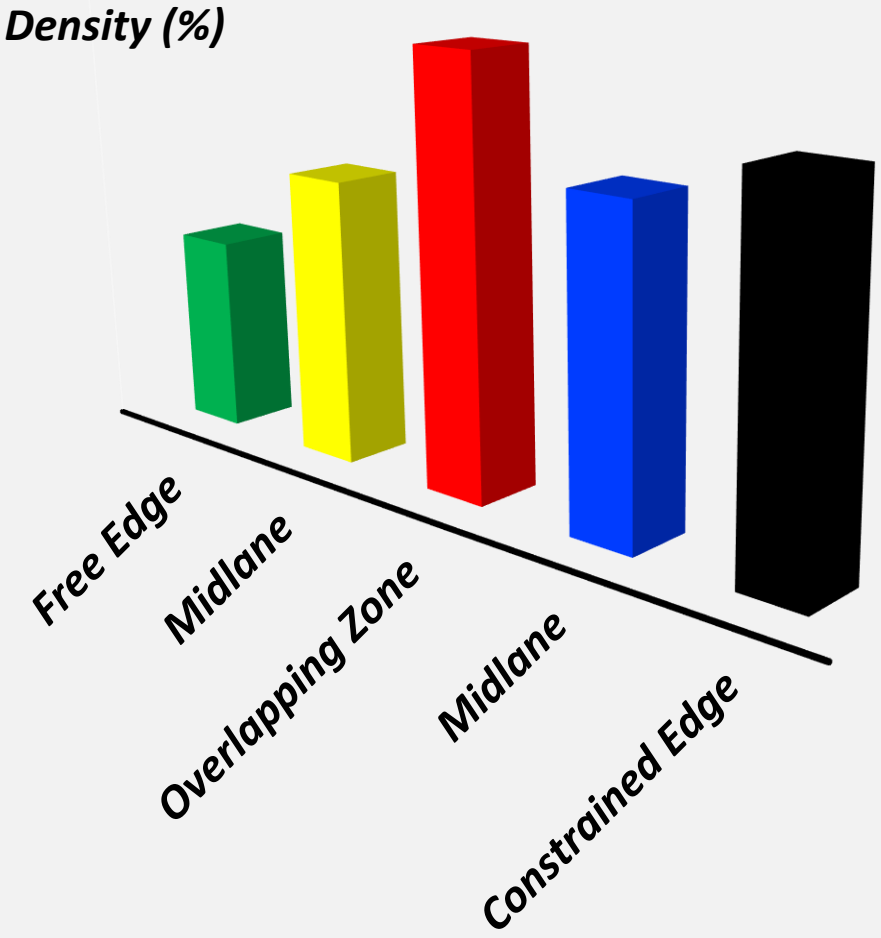


Increase of Cycles Number

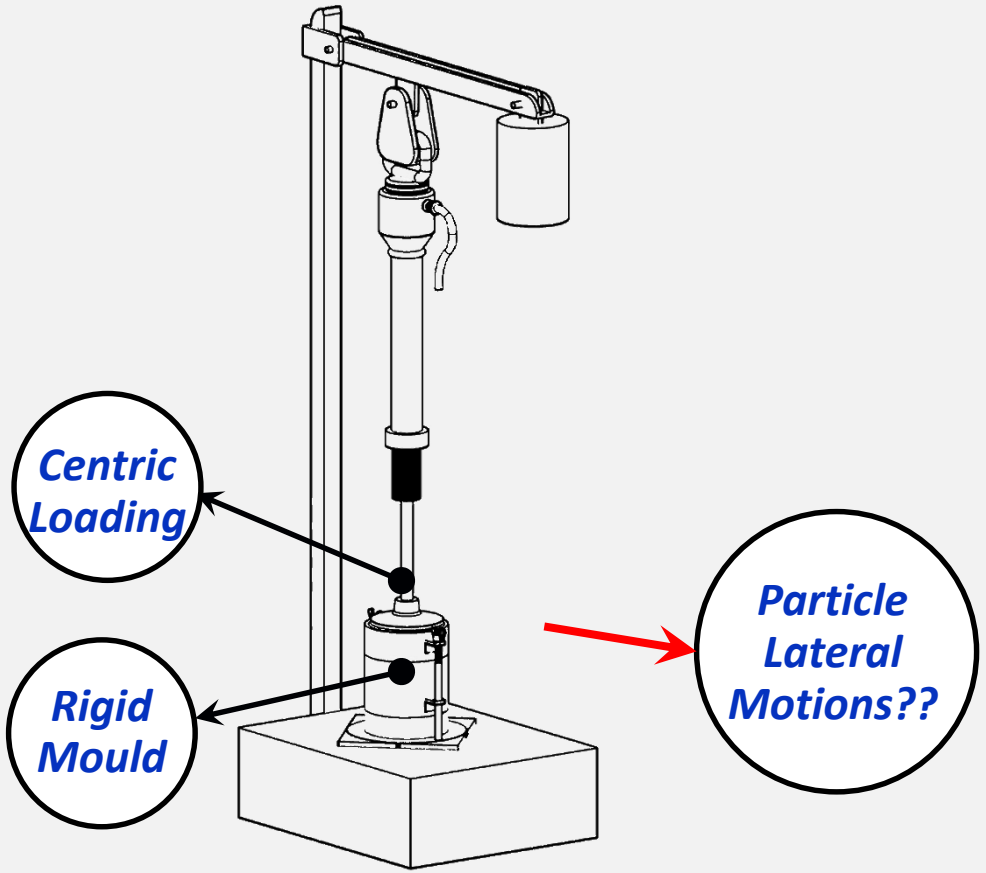


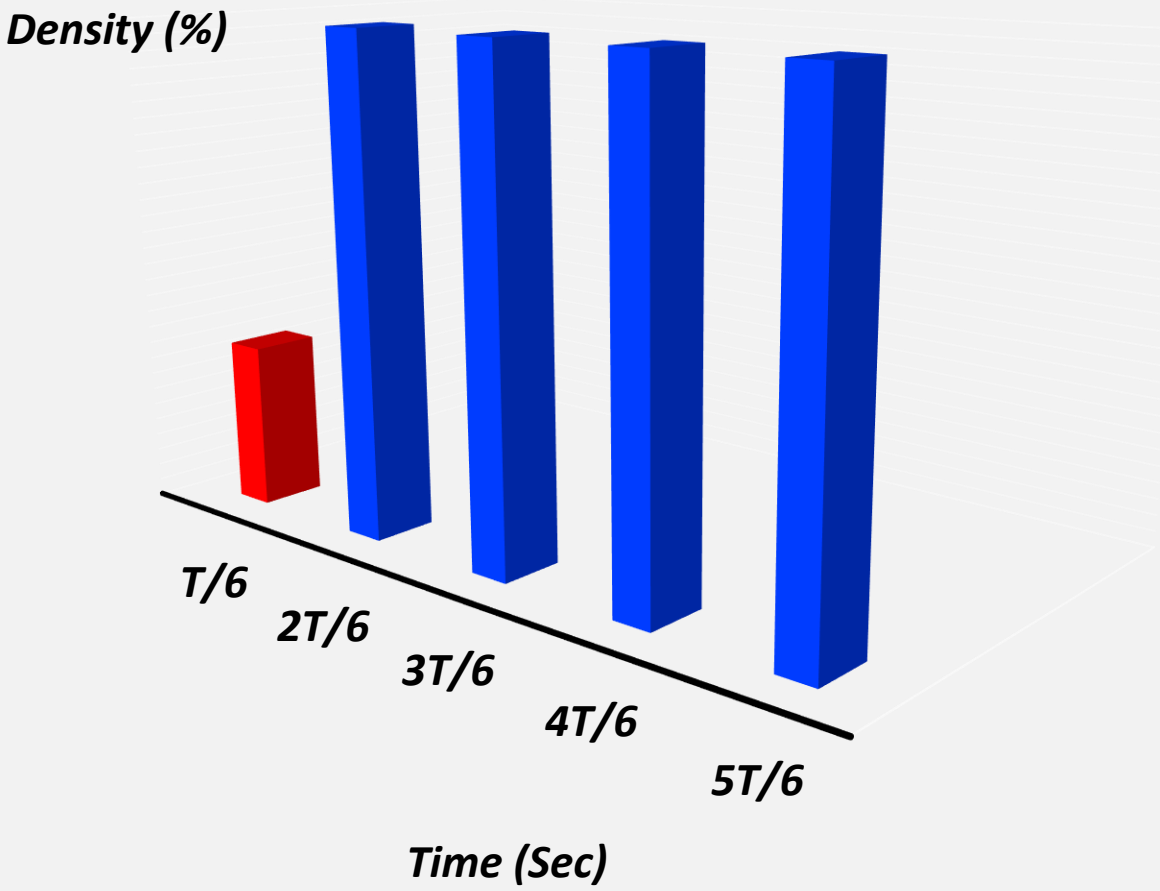
Field Cyclic Shear Straining



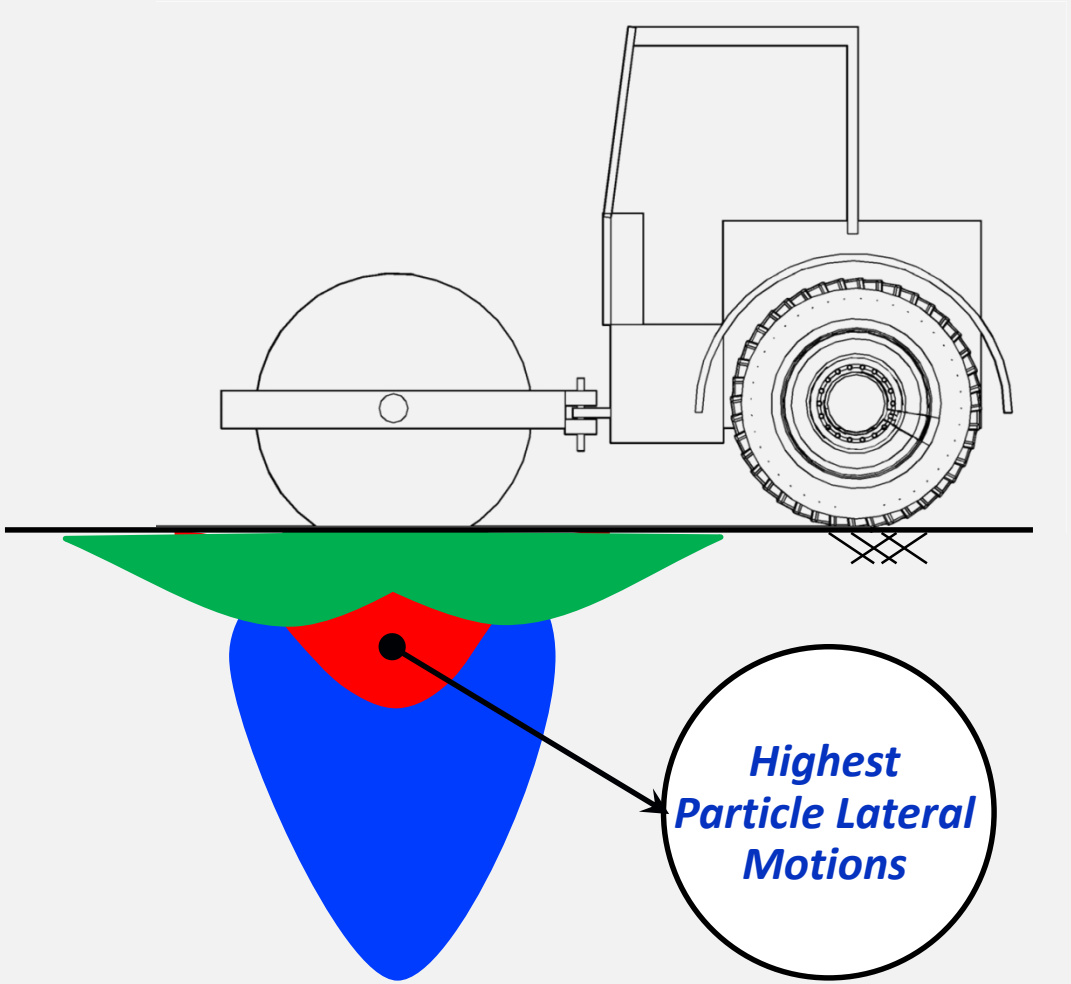


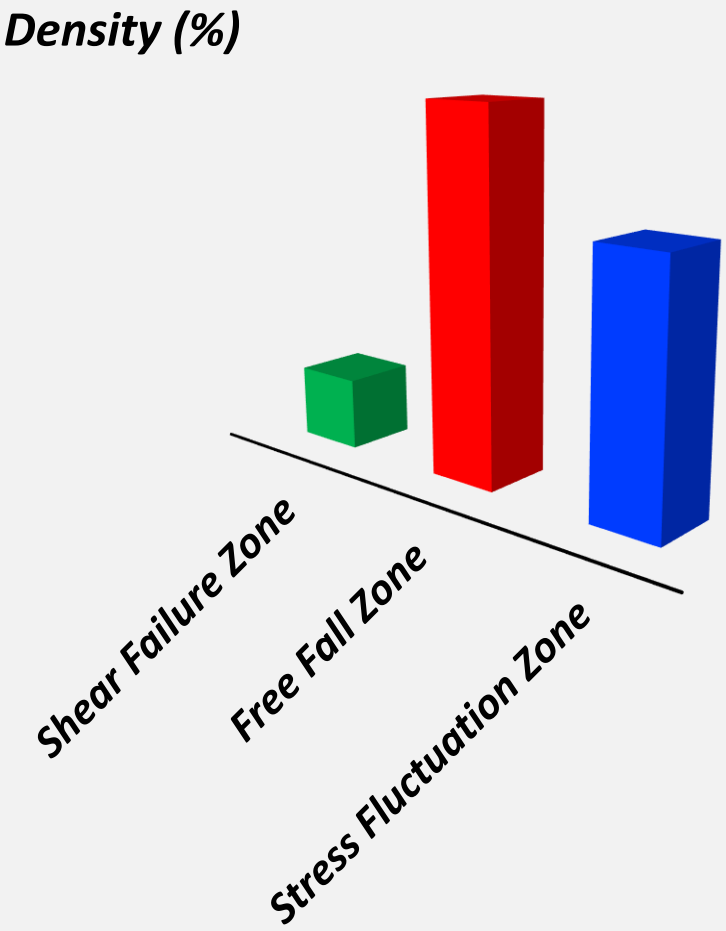
NZS Laboratory Test: Cyclic Shear Straining?



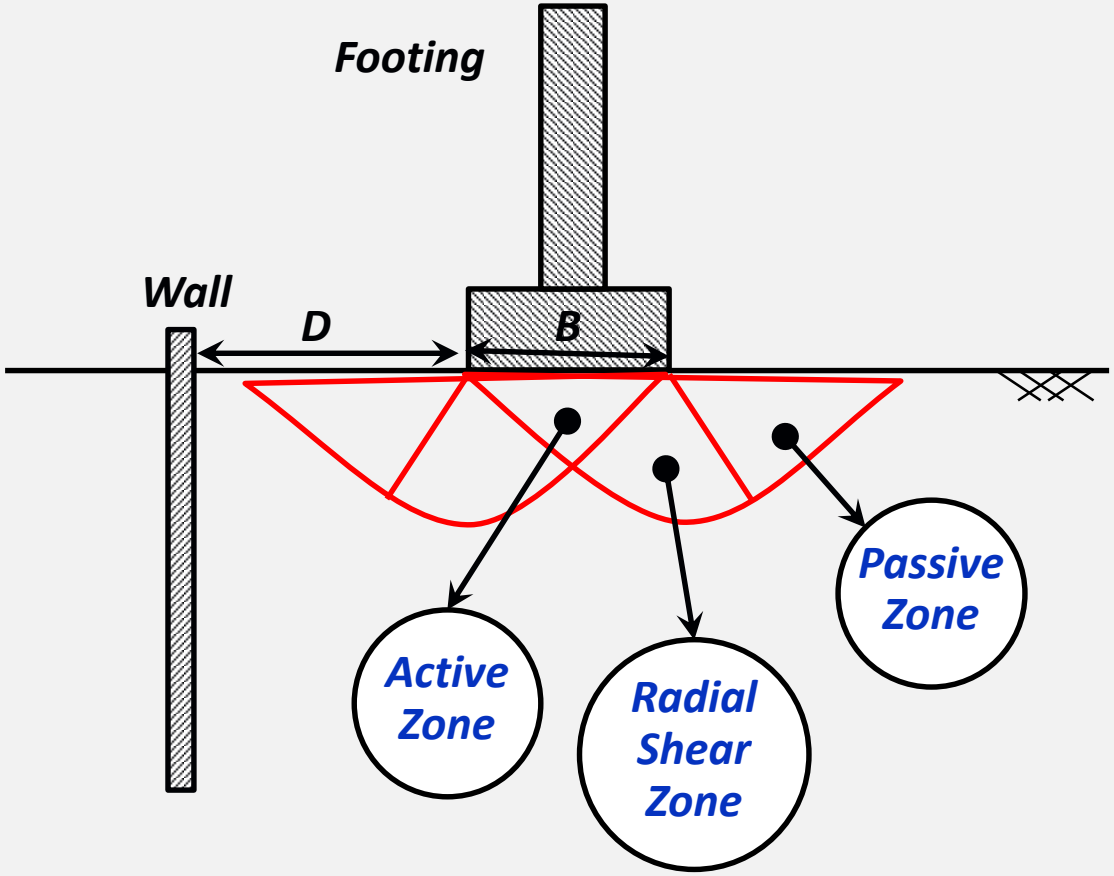


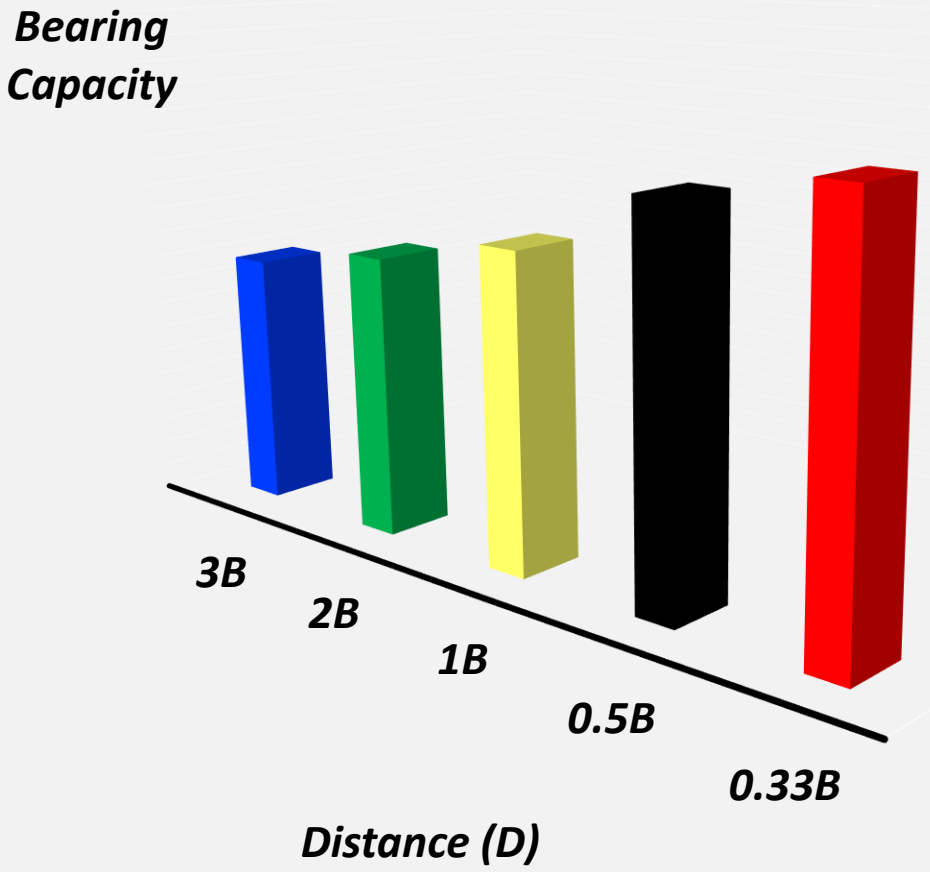
Field Loading Pattern and Confinement



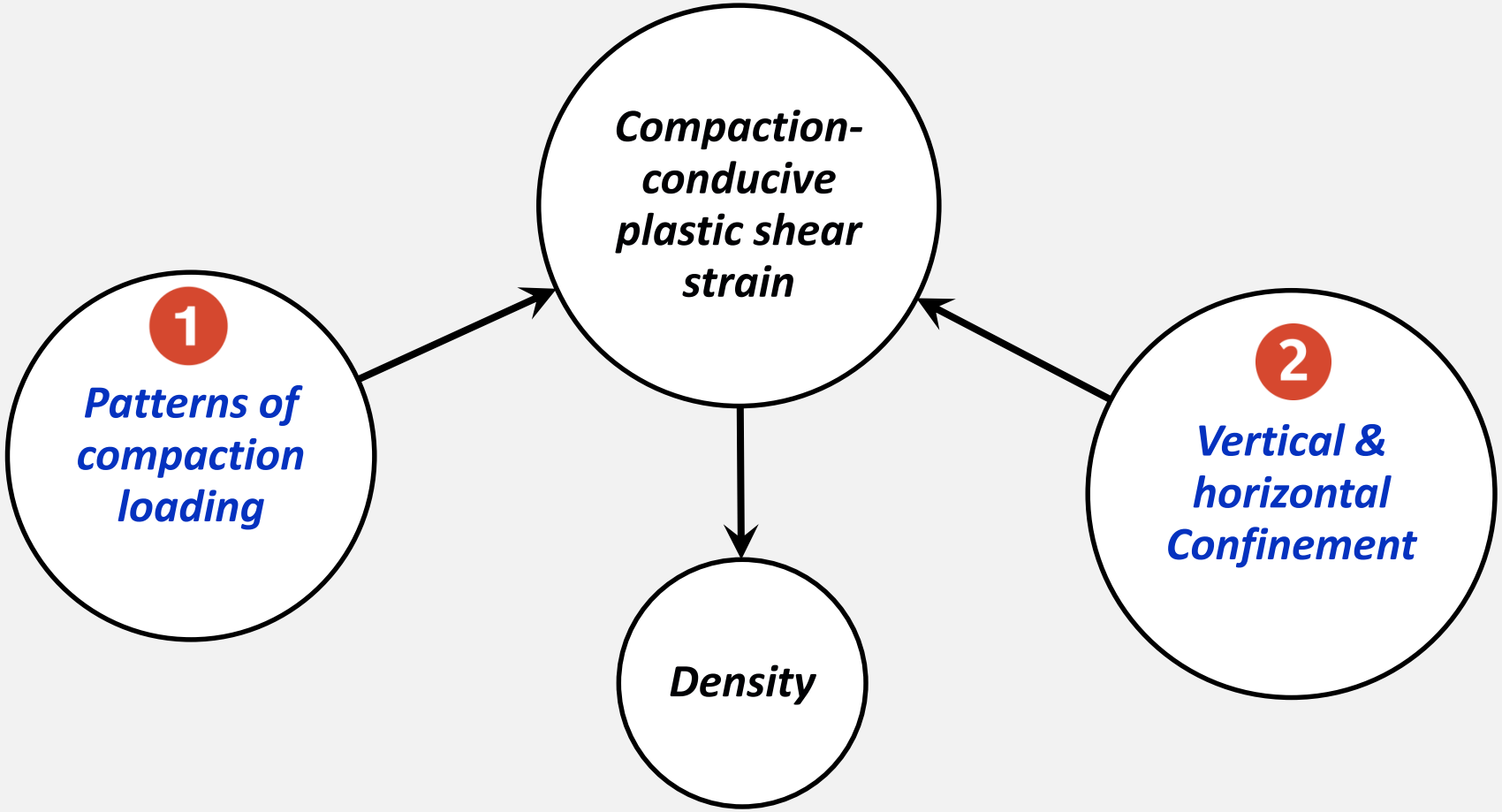


NZS Laboratory Test: Loading Pattern and Confinement





Problem Solution



Conclusions

- ✓ **Cyclic straining is the best method to densify frictional materials**
- ✓ **The NZS compaction test cannot induce cyclic shear strain due to specimen loading and confinement**
- ✓ **Any test to be developed should consider these two aspects in conjunction with field compaction**

Questions?